

American Gas *Association* MONTHLY

Gas Experience in War Areas

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Taxes and Taxpayer Movement

•

Domestic Sales Turning Point

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Automatic Water Heater Sales

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Metal Show Views Gas Exhibit

December



1940

VOLUME XXII NUMBER 11

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"ECONOMY SPEED BURNERS SAVE FUEL AND TIME!"

"MORE DELICIOUS CAKES AND ROASTS WITH THE NEW PRECISION OVEN!"

"NOTHING LIKE THE NEW SIMMER BURNERS FOR WATERLESS COOKING!"

"AND IT'S THE CLEANEST WAY TO COOK I KNOW!"

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AMERICAN GAS ASSOCIATION

LET GAS DO THE 4 BIG JOBS—COOKING • WATER HEATING • REFRIGERATION • HOUSE HEATING

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CONTENTS FOR DECEMBER 1940



There are lessons to be learned from the experience of public utilities in England and elsewhere in today's No Man's Land—which is John Citizen's own back yard. In this issue, Major Forward pieces together bits of information on conditions abroad. While by no means complete, there are many illuminating incidents which show the pattern of events. . . . Somebody has to pay the bill for rearmament and it won't be Santa Claus, so any taxpayers' movement to foster a businesslike approach to public finance should be welcome news. Mr. Dam reports on the important work of the Tax Foundation. . . . More government agencies than ever before use gas, according to George Bean, who concludes a series of fact-laden articles in this issue. . . . As a community prospers so does the gas company, is an axiom of the Community Development Committee's policy which is designed to foster an active interest in civic affairs. Mr. Thuerk makes it plain that what hurts your city hurts you—and your pocketbook. . . . As this month's success story, we present the record of Brooklyn Union who met a declining domestic load trend with a positive, aggressive program. Results? See Mr. Owen's clear-cut analysis.

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Industry in Winter—A prize-winning photograph by E. G. Hammerschmidt showing the origin of the Texas-Chicago natural gas pipe line. This view shows the main engine room and exhaust stacks of the 1250 H.P. gas compressors at the Texoma Natural Gas Company's No. 1 station at Fritch, Texas

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JAMES M. BEALL, *Editor*

PASSING OF AN AGE

.... End of Welsbach Mantles Marks New Gas Era

A SHORT time ago the Welsbach Company, once prosperous manufacturers of gas mantles went out of business, thus marking with finality the end of an important phase in our industry's history. Some years ago, when gas lighting was in its prime, this company's passing would have been viewed as a calamity. Today it passed with hardly a ripple but to many thoughtful old-timers it not only heralded the end of a romantic period of our national life but signified a great change in the gas industry. It signified the end of an evolutionary period, the growth to maturity, of a full-fledged industry, modern in every respect and fully in step with a fast-moving, mechanical age.

Wistful but eloquent testimony to the significance of this event, not so much as the end of an epoch but as the forerunner of a broader horizon for the gas industry, appeared in the A. G. A. convention number of *Public Utilities Fortnightly*. It's an expression of faith and confidence which cried for reprinting.

"Early last month, the last link between the modern era and those pleasant, if dimly lit, days of goggle-eyed gas burners was severed. The Welsbach Company, manufacturers for nearly a half-century of gas mantles, once used for gas lighting in millions of homes throughout the world, finally gave up the ghost and suspended operations. It was unable any longer to compete with the more efficient and convenient electric light bulb.

"In a way, the passing of the old gas mantle which illuminated the political meetings, Sullivan prize fights, and Gibson girl attractions so admired by our fathers, marks the end of an epoch. It also marks an important change in the life and growth of the gas industry. Broadly speaking, we cannot at all be sure that this newer and more brilliantly lighted era will make us any happier. But if civilization can bridge the transition as successfully as the gas industry, human society has more reason for optimism than can be found in the daily newspapers currently published.

"Despite its substantial period of commercial success, the gas mantle was one of those slightly anachronistic para-

doxes which bob up every so often in industrial history. It was doomed before it was born. For it was in 1884, seven years after Thomas Edison had discovered the incandescent electric bulb, that an Austrian inventor, Carl Auer von Welsbach, discovered that a lace-like hood made of erbium salts and hung over a gas flame became brilliantly incandescent at low temperatures.

"Subsequent improvements in the texture of the mantle changed the original greenish glare to a bright white light. For the gas industry (even though it could see, at the turn of the century, the handwriting on the wall for gas illumination) the Welsbach mantle provided an opportunity to make the best of existing conditions in the interest of public service. Gas distribution lines were already in place in most American cities. Electricity was still in its industrial swaddling clothes.

"And so the mantle flourished, reached its peak, and declined peacefully, as was foreseen. It brought light and comfort to a generation which otherwise would have had to squint in the semigloom of open gas burners or kerosene lamps. The gas industry itself retreated gracefully before the electric bulb. It proved once more its staying power by venturing into other unexplored fields of public service, such as central station, space heating, specialized industrial fueling, and improved domestic cooking and refrigeration.

"Today the gas industry of the United States can look back on this retreat which might have broken a less spirited and resourceful enterprise into a wreckage of insolvent fragments. It can look back in confidence that the battle is won. Gas service in newer forms is not only here to stay but progressing steadily under the banner of public service.

"Now another challenge comes to test the fortitude of the gas industry, in common with all other utility lines. It is national defense. It calls upon the gas industry to carry on its peace-time burden as well as the additional requirements of rearmament, and to do it through a period of rising taxes and other expenses, as well as of conscripted man power."

Gas In War Areas . . . Experience of a Vital Industry Under Fire



Alexander Forward

TWENTY years ago this morning, in the courtroom of the Interstate Commerce Commission in Washington, I was called on to speak at the celebration of the second anniversary of the Armistice that ended hostilities in World War No. 1, at the convention of the National Association of Railroad and Utilities Commissioners of which I was a member. While not young in 1920 I had a lot of youthful enthusiasms, not to say illusions, and on that occasion delivered myself of some sentiments to the effect that as a result of the bloody conflict then so recently ended the world had found a way to permanent peace through international association.

International Cooperation Vital

It is not necessary to point out how badly mistaken I was on that occasion, nor to say that the Peace of Versailles was itself one factor in bringing about World War No. 2. Still there is very little I would change in that speech today for if there is ever to be anything approaching lasting peace it must be brought about through international friendship and cooperation in which all must sacrifice something. There is no alternative to this but the death of civilization.

Naturally we are all more or less interested in living conditions in war areas and particularly how our own industry fares in those unhappy lands. Let me say first that the American Gas Association has a Committee on National Defense with George F. Mitchell of Chicago as chairman and its personnel is composed of gas execu-

Part of address before Midwest Gas School and Conference, Ames, Iowa, November 11, 1940.

By ALEXANDER FORWARD

*Managing Director,
American Gas Association*

tives from all parts of the country. Canada being at war is not represented on the committee.

One function of this committee is to keep itself, and the industry in America so far as possible, informed of conditions of the gas industry abroad. It must readily be appreciated that first hand information on the actual scene of conflict is, for many good reasons and primarily that of censorship, very difficult to secure. However, there are numerous interesting and illuminating indications which appear more or less at random throughout their trade press, as well as in the newspapers and frequently some specific information can be secured thereby, as well as in personal correspondence.

ARP Recommendations

At present the vitally important phase of the warfare in Great Britain appears to be necessity for protection of personnel, and to such extent as is practicable, the protection by all available means of physical property against attacks from the air.

A rather complete series of instructions, memoranda and informative material has been issued by the Ministry of Home Security (Air Raid Precautions Department) and published by His Majesty's Stationery Office in London.

Careful examination of this material by American engineers appears to warrant a conclusion that it consists largely of recommendations of a nature one would expect to put in the hands of municipal peace officers.

References in the trade press indicate more or less specific applications of the Air Raid Precautions recommendations to the operation of gas properties as follows:

One company's gas department has linked up several services to many communities with supplies in the event of damage to plant by enemy air attack, the government meeting half the cost.

Another corporation provided an underground tunnel for the safety of workers (and plant) below the coal store, making an effective bomb-proof shelter for more than 100 men; outside plant protected by 20,000 sandbags. Three repair squads formed to deal with damage to distribution mains and service.

Fighting Bomb Fires

At one plant a demonstration was made of arrangements for dealing with fires caused by air bombing. An A.R.P. squad of six men in respirators and protective clothing quickly extinguished the fires with a plunger which was afterwards sealed into the damaged pipes.

A well-known gas and coke company camouflaged its holder and had the approval of the Royal Air Force as to its blending with the local surroundings when viewed from the air.

British Standard Specifications (A. R. P. series) have been issued by the British Standards Institution at the request of the Air Raid Precautions Department of the Home Office and cover such items as concrete, bituminous paint, hand-lamps, shelter lighting, light locks, etc., etc.

In addition it has been noted that many English gas companies have in the emergency, along with many other businesses, moved their offices away from large cities. Some of the gas companies have decentralized their consumer accounting to function from the various local offices.

One article describes the installation of 1000 street main valves in one district permitting it to be split up into 26 small areas. The valves, from 48" to 6", permit one small area to

be shut off quickly without affecting the other 25.

In some metropolitan centers twelve points of the gas supply are linked so that if one is out of order, others can carry the load.

An operator equipped with an asbestos suit is the key figure in certain plants requiring the closing of valves in the event of breakage.

Under the Civil Defence Act, Great Britain makes it compulsory that employers provide suitable shelters from air raids on works, factories and business premises. The Engineering Board of Trade require gas undertakings to protect the vital parts of their plants against blast and splinters as well as to purchase spare plants for replacement and repair.

Gas Main Repair

Certain employees normally engaged on mains and services have been trained in anti-gas procedure; are fully equipped with suitable clothing, respirators, and the like and skeleton staffs work three 8-hour shifts as a nucleus of main repair.

In one gas trade paper, an article relates to air raids and much is made of the detailed plans prepared on the best advice available to cope with any situation that may arise. In one raid water, gas and electricity services were damaged; the water partly sealing the gas main and gas bags were employed, service being affected only in part and restored within three hours.

Apparently the primary lesson was that service gangs should be immediately available with light equipment and transport and that where there is water and electricity, rubber boots and stout leather gloves are helpful; and that steel helmets were useful. An important point it is stated is that control officers must be kept fully informed and an observer is desirable.

The *Portsmouth Evening News* (England) related the dropping of a high explosive bomb into a gas holder—the location is not stated—and this happening is cited with approval by a gas magazine as a suggestion "That a goodly section of the public morale would be supported by a simple assurance that gas holders will not 'explode'."

We have at Association Headquarters pictures showing a gas fire at a

broken main in an excavation caused by a bomb. You have all seen in our newspapers claims made by belligerents on both sides of successful air raids including attacks on gas plants, power stations, water reservoirs and railway yards which are natural objectives as warfare is at present conducted.

The point is that in the war zone gas holders have been struck by bombs with the result that either nothing at all happened or else the gas content peacefully burned until consumed. Quite naturally the gas trade press uses these facts in repeated statements to readers that explosions from this source are not to be feared.

An instance of the extent to which unfounded fears might induce hasty or even hysterical action is shown by the introduction of a bill now pending in Congress providing that the gas tanks in the District of Columbia must be emptied when ordered by the Secretary of War. (Certainly that bill will not get out of committee.)

Message from Britain

Those of my hearers who attended the Atlantic City Convention's opening session heard President Beckjord read a letter from the President of the Society of British Gas Industries in which occurred these strong words: "We have been having a number of raids during the day and night. We feel that they will go on. If they do it will not make the slightest difference to our determination to see this job through to the end. There is only one end as far as we are concerned—we are going to smash Naziism and what it stands for. To do that we will risk everything we possess because it is impossible for us to live except we breathe the air of freedom.

"We are all right for food—the nation is splendidly fed. We are all right for courage—it was never greater. Best of all we are all right for staying the course because we are certain we can last longer than our enemy. Above all things we know we are fighting for eternal principles and to preserve the generations who will succeed us, so rest assured we will never quit until we have made certain that democracy is the victor."

A series of articles in German appeared in *Das Gas und Wasserfach*

(GWF), a well known trade journal of the German gas industry dealing with protection against air raids to gas works and coke oven plants.

Among the authors are some known as visitors to this country; one by Dr. Mezger who is a member of the American Gas Association. Translations have been made by a member of Headquarters staff and while the articles are too long for quotation in full and reproduction, it may be stated that they are exceedingly detailed and entirely comprehensive.

A fundamental basis appears to be that precautions in Germany are continually revised and modernized. Discussion is given to adequate protection rooms; machine protection; supervisory observations; communications; warning; camouflage; and blackouts. It is pointed out that a combination of adequate blackouts against observations from several thousand feet and the normal operation of a coke oven plant or a water gas installation is not easy.

In connection with continuity of supply and the restoration of disturbed or destroyed service, reference is made to the installation of shut-off valves in all transmission mains of specific sizes for segregation into small zones, applying to both gas and water.

U. S. Toluol Supply

At the request of the Army Ordnance Department our Committee on National Defense has made a study of present and potential production of toluol by the gas industry and has turned in its report for which we have been thanked. The Ordnance Department is purchasing supplies of toluol at the market and storing the same at places and in quantities unknown to anyone outside the service.

Since it seems clear that the total potential production of toluol by the gas industry and the coke oven industry combined would not approximate one half the Government's requirements in the event of hostilities, the War Department has underwritten the cost (\$10,500,000) of a plant at Humble, Texas, for the extraction of toluol from petroleum. Should the operation of this plant be continued after the termination of hostilities in which we might be engaged, in competition with the output of gas plants and coke

ovens, a lot more will have to be said and done.

For the protection of plants, transmission lines and compressor stations while we are at peace, it seems probable that there will be national legislation supplemented by state laws to be considered during the winter and applicable to industrial plants generally. We can tell you more about this if you would like to know.

Through the cooperation of our Committee on Personnel Practices, Mr. Mitchell's committee is informed as to the policies followed by gas companies with respect to their employees called into training as members of the National Guard or subjected to selective service under the draft. For the most part the policy of our companies is quite liberal and there nowhere appears any intention to profiteer in the emergency.

Many of our companies, particularly those located in industrial centers, are already called upon for additional services in the national defense program and in the next few years these demands will increase. This subject was excellently covered in an address at our recent Convention in Atlantic City by Franklin T. Rainey, then chairman of our Industrial Gas Section. The paper has been published and is available.

Aside from all questions relating to armed conflict you are engaged in an industry whose stability is assured, whose vital place in the national economy as well as in national defense and preparedness, is well established. One comment made at the Atlantic City Convention seems to be practically universal, that it showed a feeling of confidence and a spirit of progress unexampled in a number of years.

Appointed Chairman of Rate Committee



C. L. Follmer

C. L. FOLLMER, manager of the rate research department of the Consolidated Gas Electric Light and Power Company, Baltimore, Md., has been appointed chairman of the Rate Committee of the American Gas Association. Mr. Follmer will direct the important work of this

committee which has devoted more than 20 years to study of all phases of rates and rate-making.

After graduation from Cornell University in 1910 with a degree of Mechanical Engineering, Mr. Follmer spent five years in the power and mechanical department of the Consolidated Coal Company in Fairmont, W. Va., engaged in power plant design and engineering work. The following two years, from 1915 to 1917, he was assistant to the chief engineer of the Hooker Electrochemical Company of Niagara Falls. After a stay of several years in Saranac Lake, N. Y., his next assignment was that of manufacturer's agent for a three-year period in which he engaged in the sale of power plant.

From 1924 to date, Mr. Follmer has been associated with the Consolidated Gas Electric Light and Power Company of Baltimore—first as assistant to the electrical engineer engaged in the design of the Holtwood (Pennsylvania) and Gould Street (Baltimore) power plants; then two years as assistant purchasing agent, several years as technical assistant to the president, and, since January, 1938, as manager of the rate research department.

Gas Industry Salutes T. B. Gregory



T. B. Gregory

T. B. GREGORY, chairman of the board of The Manufacturers Light and Heat Company, Pittsburgh, and a veteran of 56 years' service in the gas industry, was honored at a luncheon on October 18 given by officials of the company in celebration of his eightieth birthday on October 15. Mr. Gregory's birthday brought a deluge of cards, telegrams and personal congratulations as the gas industry paid tribute to his

many years of outstanding service.

Mr. Gregory's career spans a period of growth and development in the natural gas industry that is unique in the country's history. It began in 1884 when he was employed as a general utility man by the Union Light and Heat Company which supplied natural gas to the towns of Foxburg and St. Petersburg, Pa.

His business activities thereafter included the organization and consolidation of a large number of natural gas companies, many of which pioneered the extension of natural gas service to new communities. He had an important government post during the World War in the Oil and Gas Division of the Fuel Administration and also

organized and directed the Bureau of Natural Gas.

After the war, Mr. Gregory continued his work in the natural gas field and in the early '20's, he accepted the presidency of the Manufacturers Light and Heat Company.

Prior to the fall of 1926, when the Ohio Fuel Corp. was merged with Columbia Gas & Electric Co. of West Virginia into the present Columbia Gas & Electric Corp., Mr. Gregory was a vice-president of the last named corporation and was active in the negotiations which led up to the formation of the corporation. He has been connected with Columbia Gas & Electric Corp. since the time of its organization and is now a director and honorary vice-president.

Mr. Gregory was among the early oil and gas operators in the Indian territory, now the State of Oklahoma, and was active in the putting together of the companies which eventually formed the Oklahoma Natural Gas Co., of which he was a director.

He has also been for many years active in the affairs of Lone Star Gas Corp. and its affiliated companies and since the death of George W. Crawford in 1935, he has been chairman of the board of that corporation. In 1926 he was active in the organization of Western Public Service Corp., organized by Ohio Oil Co., Prairie Oil and Gas Co. and what is known as the Crawford interests. Since the organization of this company, now Mountain Fuel Supply Co., operating in Wyoming, Utah and Colorado, he has been a vice-president and, since the death of George W. Crawford, chairman of its board.



Left to right—R. G. Soper, president, Dallas Gas Company; D. A. Hulcy, president, Lone Star Gas Company, and E. H. Poe, secretary, A. G. A. Natural Gas Section, discuss plans for the 36th annual Natural Gas Convention in Dallas, May 5-8

Gas Taxes . . . and the Taxpayer

Movement To Eliminate Abuses

WITH 40 cents of the average gas customers' bill going for taxes, the gas industry, natural and manufactured, paid a tax bill for 1939 of \$95,196,000, representing an increase of \$6,990,000 over the previous year. Of this amount the manufactured gas industry contributed \$50,602,000 and the natural gas industry, \$44,594,000.

The size of the industry's tax bill is apparent when it is compared with a gross corporate income for 1939 of only \$179,016,000.

Although no breakdown of the tax total by classifications is available, it is probable that the bulk of these levies are collected in local real estate taxes with Federal and certain state corporate income taxes as the next largest items.

Nationwide Economy Movement

For executives in a business which contributes so heavily to the cost of government, it should be encouraging to note that the nation-wide taxpayer movement for economy and efficiency in state, and local administrations has grown to such proportions that its leaders have set a \$1 billion cut in the tax bill as their goal for 1941.

Executive directors of nineteen of the state taxpayer organizations met recently in New York at the invitation of the Tax Foundation to plan next year's budget reduction campaigns and coordinate their programs with the national defense effort. There are now 27 state-wide public expenditure control associations and some 1200 local economy groups in cities, counties, towns and villages. Savings effected by the taxpayers this year will run into hundreds of millions of dollars.

The movement assumes critical importance at a time when the annual cost of government stands at more than \$18 billion and the public debt, (federal, state, and local), at about \$64 billion. With a tax ratio to national income of 20% or slightly more and

By COLBY DORR DAM
Tax Foundation, Inc.

an expenditure ratio of about 25%, the cost of government is approaching restrictive levels. In order to hold these ratios down at a time when the government is launching a \$16 billion national defense effort (appropriated or authorized at the present session of Con-



Courtesy of American Magazine

More than 1,200 organizations are up in arms against needless public spending. Billions for defense, say they, but no more free rides for waste, inefficiency, and extravagant duplication. Last year, American citizens paid more than one-fifth of the national income in taxes. . . . In some states they pay tribute to as many as ten separate governmental units, from Town Hall to National Treasury. They demand an end to the overburdening load that threatens Uncle Sam's vital defense program.

gress) which may run to \$30 billions or more, policies of strict economy must be established both in the non-defense sectors of the Federal budget and in state and local jurisdictions.

Through a business-like approach to public finance, the citizen taxpayer organizations have made an excellent

start towards this objective. They achieve their economies by careful research into government expenditures, publication of simplified surveys, newspaper publicity featuring waste of public funds and specific demands for reform, attendance at budget hearings, and personal contacts with public officials.

Some typical results obtained by these methods are as follows:

The Pennsylvania Economy League announces a reduction in net estimated expenditures for the 1939-41 biennium of \$80,210,365. At a public hearing on the state budget, called by the Massachusetts Federation of Taxpayer Associations, eighty-seven different economies were recommended by the organization's research staff. The hearing resulted in a reduction of \$14,500,000 in the state budget.

Three Million Reduction

Studies made by the Kentucky Tax Reduction Association resulted in the passage of county reform legislation by the Kentucky General Assembly. Five laws were enacted including a uniform County Budget Law. The Association estimates a resultant reduction in county expenditures of \$3 million in the first year and \$500,000 a year thereafter.

Through use of the budget appeal law the Indiana Taxpayers Association effected savings in local tax levies alone of more than \$12,000,000 in 1940. The Minnesota Taxpayers Association reports that following passage of the Reorganization Act supported by it, spending authorized by the 1939 biennial legislature was \$5,500,000 less than for the previous two years. The Citizens Tax League of Ohio estimates savings of more than \$2,500,000 in state government costs through court actions brought by the league's founders and carried on since its organization in 1939.

Led by the Michigan Citizen Public

Expenditure Survey, the communities in this state which have active taxpayer associations made savings of \$6,000,000 from June 1939 to May 1, 1940. The Iowa Taxpayers Association estimates economies achieved through 1940 taxpayer programs at \$10,000,000.

In New York State, the Citizens Public Expenditure Survey reports savings of more than \$40,000,000 in state taxes for 1939 and 1940, while local economies effected to date total more than \$28,000,000. Many other states have obtained proportionate economies under the belief that the taxpayer has the same right to full value for his public tax dollar as he has for his private food or clothing dollar.

Although Federal government costs have risen steeply in recent years, while state and local costs have kept to fairly even levels, the taxpayers are finding plenty to keep them busy in the latter field. Following are a few examples of the types of waste and inefficiency which their research staffs are revealing:

Types of Waste Revealed

Signing of blank cheques against future expenditures; no detailed budget proposals presented to citizens; total departmental requests only; no public hearings called on proposed budgets for the coming year; county supervisors' reports give no specifications on expenditures, only amounts and names of recipients; the citizen doesn't know what his money went for; expenditures are often charged against appropriations with which they are not related.

No control exercised over the purchase of land or prices paid for highway rights; unnecessary borrowing year after year instead of increasing tax rates; no allowance made for reduction of funded debt; thus interest piles up; departments making their own purchases on a basis of favoritism and regardless of competitive bids.

The City of St. Paul, Minnesota is still paying interest on bonds issued prior to the Civil War. In this state a friend of a member of a city council purchased a lot for \$500 and later sold it to the council for \$5,000 for public purposes. This state lost \$40 million in big loans on small farms and in

1941 will pay \$3½ million interest on this dead loss transaction.

Insuring snow ploughs and steel flag poles against fire; hiring a truck for three years at \$10 a day; elected officials riding one block for lunch in taxicabs at a cost to the taxpayers of \$1 a day, etc.

The modern taxpayer association has little difficulty in eliminating such abuses as these. By aiding and supporting these citizen expenditure control organizations, executives and members of the gas industry can not only render a valuable public service but also help to save tax expense both for themselves and their companies.

Convention Bouquet

ANOTHER first-gas-convention-goer has joined the ranks of those who never want to miss an A. G. A. annual meeting, or at least is already in line for next year's convention. After attending the A. G. A. convention in Atlantic City, N. J., in October, John B. Schneller, of the Owens-Corning Fiberglas Corporation, Toledo, Ohio, wrote to headquarters as follows: "This was my first A. G. A. convention and I thought it was a huge success. I enjoyed all phases of the convention and thought it represented a grand job of organization and promotion. It was certainly most worthwhile from our standpoint, and you can bank on our attendance next year without any question."

Best Gas Papers Will Win \$225 in Prizes

PRIZES totaling \$225 are offered by the American Gas Association, under plans announced December 1 by R. S. Child, chairman, Committee on Personnel Practices, for the best papers on the subject "How I Would Increase Public Acceptance of Gas as the Ideal Domestic Fuel."

The contest is open to all employees of member gas companies of the American Gas Association. Two prizes will be awarded—the first prize will be \$150, and the second, \$75. Papers must be the original work of the author or authors, prepared exclusively for this competition. No limitation is established as to length.

The contest closes May 1, 1941, and all entries should be submitted by that date to the Committee on Personnel Practices, American Gas Association, 420 Lexington Avenue, New York, N. Y. Detailed information covering the contest rules may be obtained from the Secretary of the Association.

Winners will be announced and prizes awarded at the 1941 annual convention of the Association.

Gas By-Products Aid Defense Program

THE Milwaukee Coke & Gas Co. plant at Milwaukee, Wis., is now working at top speed turning out by-products needed in the manufacture of ammunition, and producing coke for foundries, many of which are engaged on national defense orders, it was announced by Walter Hohler, assistant chemist at the plant. He made the announcement in releasing results of a study he has just completed to determine how essential coke plants and their products are to the national defense plan.

41 New Coke Ovens To Be Built

CONSTRUCTION of 41 new coke ovens, to insure an adequate supply of gas to consumers, has been announced by officials of the Citizens Gas and Coke Utility, Indianapolis, Ind.

The 41 new ovens to be added to the three batteries of 40 ovens each now in operation at the Prospect Street Plant will be the latest in type and design: Koppers Becker type, under-jet combination coke ovens, affording a savings in fuel required for underfiring purposes and furnishing closer control over oven heats resulting in greater manufacturing efficiency. Construction of the new ovens and the cost of making necessary changes involved in the installation will amount to \$1,100,000.

The maximum capacity of the present 120 coke ovens in operation at Prospect Street is about a daily average of 12 million cubic feet of gas and a monthly average of about 29,400 tons of coke. The 41 new ovens will increase this capacity by 33¼%.

Hold Cooking Classes for the Blind

SELF-RELIANCE in the lives of blind people is now being increased to the sphere of domestic cooking. Girls and women are being trained in Victoria at the Royal Institute for the Blind by means of cookery classes held several evenings a week under the supervision of a visiting instructor.

The students use a standard model gas stove, with the directions for regulating it printed in Braille. The stove has a single-burner oven, which type prevents burning the operator while commodities are being put in or taken out. Six girls form a class, each one having a separate burner for boiling purposes.

—The National Gas Bulletin, Australia

U. S. Fuel Facts . . . Gas Industry

Serves Oldest Government Departments

MY fourth and final article on the gas used by the various Government Departments deals with three of the oldest established departments with which the gas industry enjoys an ever-increasing annual business. The method by which each department determines the fuel to be used is interesting.

Public Buildings Administration

This Administration was formerly the Procurement Division of the Treasury Department and prepares the plans for all three of the above named departments. Custom houses, court-houses, Government warehouses, and other Departmental buildings are all handled entirely by the Public Buildings Administration. Plans and specifications are prepared and equipment and appliances are bought and installed under the general contract.

We work very closely with this department in furnishing them information on gas. We also furnish them printed matter on equipment and the approximate cost of same. Eleven of these public buildings are now using gas for heating, with an annual consumption of approximately 42,938,330 cubic feet, and seven of them use gas for water heating with an estimated annual consumption of 347,800 cubic feet.

Post-Office Department

In making the plans for post-office buildings the Public Buildings Administration insists on combination burners for the two most available fuels. Later the plans and specifications are turned over to the Fourth Assistant Postmaster General's Office to make a contract for the cheaper fuel. The engineers of the Fourth Assistant Postmaster General's Office then confer with me regarding the use of gas, after which the matter is referred to the lo-

- The rapid growth of government agencies in recent years has brought about increased fuel requirements in many departments which have been filled by modern gas appliances. The extent of this new business and the set-up of various government departments have been described in a series of articles by Mr. Bean which ends in this issue.
- Previous articles in the series on government activities appeared in the July-August, September and October issues of the MONTHLY. Any further information will be supplied upon request to Mr. Bean in Washington.

By GEORGE W. BEAN

Fuel Consultant, American Gas Association, Albee Building, Washington, D. C.

cal postmaster who takes bids on the two fuels mentioned in the specification.

When the postmaster has assembled all the data concerning rates, etc., it is then sent to the Fourth Assistant Postmaster General's Office and the contract is awarded here. Combination burners are specified except in the heart of the natural gas territory, where straight gas-fired boilers are used.

Gas is also used for hot water the year 'round, being supplied during the summer months by a storage system. In some of the larger post-office buildings cafeterias are installed, but the contracts for this fuel service are separate and apart from the post-office service as these cafeterias are operated by an employee welfare committee, and are not a part of a Government operation.

We have furnished the Post-office Department engineers with all available data on gas, gas burning equipment and appliances. We have been able to take a lot of work off the Government officials in furnishing this data and obtaining rates for gas, and

they are very appreciative of this service.

In instances where boiler consumptions have exceeded estimates after the heating plant has been in operation, we have arranged with officials of gas companies and burner manufacturers to make a survey as to the cause, and in each instance have been able to correct the trouble. This service has also been very much appreciated.

At the present time there are 298 post-office buildings using gas and the annual gas consumption exceeds 400,000,000 cubic feet. There has been a large number of new post-office buildings erected this year and there are still 20 new ones to be contracted for during the present fiscal year, for which the fuel has not been decided upon.

Public Health Service

When new hospitals or other buildings for the Public Health Service are to be constructed the Public Buildings Administration prepares the plans and specifications under the direction of the Surgeon General's Office of the Public Health Service. The Public Health Service is told what fuels are available at that particular site and they decide what fuel is to be used, and their instructions are carried out by the Public Buildings Administration.

The engineers of both the Public Health Service and the Public Buildings Administration work together in preparing plans and specifications, and if gas is to be used, the contract for all equipment and appliances for these hospitals and other buildings are let in the general contract. The Public Health Service is favorable to the use of gas, particularly for the building heating in the natural gas territory. We keep them advised as to the latest approved equipment and appliances.

At the present time the Public Health Service is using gas for boiler fuel in 51 of their buildings and the

approximate consumption is 222,023,-075 cubic feet per year. There are 204 other buildings using gas for cooking and water heating with an approximate annual consumption of 52,207,905 cubic feet.

After working eight years with the engineers of the various Government Departments, they are now fully advised about the uses of gas, and the relationship between the gas industry and all Government Departments is of the best. We have finally arranged with all Government Departments whereby gas equipment and appliances must have the Seal of Approval of the American Gas Association Testing Laboratories.

No mention has been made in this or previous articles of the Defense Housing Program, which is the newest of them all. Different Government agencies have been assigned to handle this program. The Public Buildings Administration is in charge of all defense housing projects for the War Department, both on and off Government reservations. The United States Housing Administration is handling practically all of the defense housing

in the industrial areas, and they are also handling a part of the program for the Navy. However, the Navy is doing some of its own building. We are in daily contact with the officials handling these programs and can furnish detailed information on any project upon request from gas company officials.

"Gas Wonderland" Closes with Record Crowds

THE curtain has come down on another colorful chapter in the annals of America's gas industry—its participation in the two years of the New York World's Fair.

A surging mass of visitors continuously streaming through "Gas Wonderland" on Sunday, October 27, the last day of the great exposition, broke all previous building attendance records. An actual count of 121,682 men, women and children was made on that day.

Hugh H. Cuthrell, president of Gas Exhibits, Inc., reported that a known 3,983,-327 people had visited the exhibit during the 1940 season but that provision must be made for the several thousands not included in the actual count.

The official World's Fair figures for total paid admissions were 18,910,233 in 1940 as compared to 30,189,033 for the previous season.

Elect Vice-Presidents

AS this issue of the MONTHLY goes to press, announcement has been made of the election of three new vice-presidents of the Consolidated Edison Company of New York, Inc.

Hudson R. Searing, engineer of operation in the electric field, became vice-president of electric and gas operation and electric production. James F. Hunter, assistant vice-president, who is president of the Society of Gas Lighting, became vice-president in charge of technical service and gas production. Leland B. Bonnett, engineer, design and planning, became vice-president in charge of design, inventory, purchasing and stores.

William Cullen Morris, vice-president in charge of gas operations, and Howard W. Leitch, vice-president in charge of electric operations, who have passed the company's retirement age, were relieved of administrative duties. They will act as consultants on special assignments from the president. Mr. Morris is particularly well known in the gas industry for his long and useful career in this field.

Six new assistant vice-presidents were elected: Harland C. Forbes, Porter C. Savage, James F. Fairman, George L. Knight, Earl L. Griffith, and Colin C. Simpson.

These promotions and changes in duties became effective December 1.



Program-planners for the 1941 A. G. A. Natural Gas Convention at a meeting in Chicago, Nov. 10

Left—Julian L. Foster, chairman, Transmission Committee; H. D. Hancock, chairman, Natural Gas Section; E. L. Rawlins, chairman, Production Committee; and J. French Robinson, chairman, General Program Committee. Below—Members of the Production and Transmission Committees at a luncheon meeting. Left to right, around the table: Max K. Watson, G. P. Estill, J. G. Dickinson, A. W. Ambrose, Richard W. Camp, T. W. Johnson, E. H. Poe, E. L. Rawlins, J. French Robinson, H. D. Hancock, Julian L. Foster, J. H. Isberwood, J. A. Clark, J. P. McClintock, H. J. Carson, R. H. Strong, C. H. Waring, C. C. Phillips, and C. E. Beecher



Natural Gas Convention Plans Take Shape

MEMBERS of the Production and Transmission Committees of the Natural Gas Section, American Gas Association, met on November 10 at the Palmer House in Chicago to plan the technical program for the thirty-sixth annual Natural Gas Convention, meeting in Dallas, Texas, May 5-8, 1941.

According to the tentative program outlined for this convention there will be two Production Conferences and three Transmission Conferences, both meetings featuring important symposiums and panel discussions.

Civic Enterprise . . . Wins Friends and New Business for Gas Utilities

"Oysters are better than ever this year!
Add variety to your menu by serving
them often.

Production of oysters is an important
local industry."



H. C. Thuerk

was addressed to all of its customers
and carried to them on the January,
1940, bill for service.

This oyster incident is but another
testimonial to the growing conviction
among the progressive leaders of our
utility companies that it is worthwhile
today for us to take a more active part
in promoting the economic welfare of
the communities we serve.

Good Citizenship Pays

This thought has been strengthened
by the observations of Elmo Roper,
director of the public opinion surveys
of *Fortune Magazine*, in a talk which
he made before a recent utility conven-
tion. Mr. Roper maintains that the
customer forms three separate judg-
ments of you as a utility company. He
thinks of you first as a seller and here
your price and service are important.
Then he judges you as a neighbor, as
to whether you possess courtesy and
other neighborly qualities. Finally, he
sizes you up as a citizen—as to whether
you help or hurt his community. And
his overall opinion of you is a com-
posite of these three judgments.

Perhaps we feel that people's opin-
ion of us is influenced more by the
buyer-seller relationship than the judg-
ments on neighborliness and citizen-

- A broad-visioned program to make every gas company a good citizen and a good neighbor as well as a good business was launched this year by the Committee on Community Development under the Chairmanship of H. C. Thuerk. Aimed to stimulate greater community activity by gas companies, the program has already made considerable progress.
- In this article, Mr. Thuerk states the need for such a program, the opportunities it presents, and the successful accomplishments of a few aggressive companies.
- Previous articles on this program have appeared in the April, May and July-August issues of the MONTHLY.

By H. C. THUERK

*General Mgr. of Sales, The Utility
Management Corp., New York, N. Y.
Chairman, Committee on Community
Development*

ship. If you will read Mr. Roper's address you will find that in one city 35 per cent of the people thought electric rates were high and 30 per cent thought the gas rates were high. In the same city, 60 per cent picked the electric company as being most active in promoting the welfare of the city and only 9 per cent picked the gas company. And when the people were asked as to where they obtained the most courteous treatment, 48 per cent said the electric company and only 7 per cent the gas company.

Therefore, here is a city in which the people felt that the gas company's rates were slightly more reasonable, but that the electric company was a better neighbor and citizen.

Now I do not want to create the impression that the conditions found by Mr. Roper in this particular instance are typical of all cities. I have described them only for the purpose of

bringing to your attention the influence which community development activities may have on a customer's opinion of a utility company.

No local industry is perhaps more dependent for its livelihood on the general welfare of a community than is a utility company. The company shares in its prosperity and suffers with it during periods of adversity. There is therefore full justification for the gas company to work hand in hand with civic groups and agencies in developing its service areas, realizing that as these areas grow and develop, additional business accrues to the company.

The alert community must meet the challenge of each progressing moment. It must invoke modern methods in everything it undertakes and its tempo must be continually stepped up. It must guard against human depreciation within its borders and inculcate initiative and the "will to do" that will make it a place in which a man will want to live and rear his family. To grow and be prosperous, the community must seek new activities, new business establishments, new industries and the creation of new business resources before those it has, have become obsolete or depleted in usefulness.

Our Civic Personality

Every community has aspirations to become a better and more prosperous place in which to live. The problem of how to accomplish this will vary among towns and cities. Every community or area however has a dominant characteristic that may be found in its industries, its commercial attainments, its recreational facilities, its historic associations, its cultural achievements, its intellectual pursuits and any number of other distinguishing features peculiar to the section in which it is located. All of these make up its civic personality.

Boston has its factories and shipping, its historical romance, its old

families, its literature, learning and possibly, not least, baked beans. Pittsburgh has its steel, coal, its great research laboratories, its smoke and hills. Chicago has its railroads, its commercial distribution facilities, its beautifully developed lake front, its wind.

In like manner, the opportunity is ever present for a community to determine by careful analysis and study the characteristics which make up its own civic personality and how these can be developed and promoted for the benefit of its citizens. The desire for improvement is almost universal and there are usually many willing hands ready to serve when the opportunity is presented in the form of a practical program.

In many communities there is a lack of knowledge of how to proceed. What is needed is a plan, intelligent leadership and cooperation of local agencies. Here is where the gas company can be of real service by making available its own information on the community, assisting in preparing a plan, helping in obtaining the cooperation of all civic organizations and furnishing leadership and assistance consistent with its resources.

Sound Management Fundamental

It is almost needless to say that co-operation of this type is predicated on a sound policy of company management. The company must be giving good service at fair rates. It must have employees who are good citizens and who daily carry out their good citizenship through courteous and efficient treatment of customers.

As a community develops, and prospers as a result of coordinated planning, let us see what some of the probable effects will be on the gas company.

In the first place, the participation of a gas company in such an activity will indicate its willingness and desire to strive for better citizenship. Many of us feel that there is a correlation between public acceptance of a company and the consumption of gas. If the gas company is generally recognized as being a good neighbor and citizen it is reasonable to believe, all things being equal, that a prospective fuel purchaser will be inclined to favor gas over other fuels.

Cooperation with civic agencies to

attract new enterprises and to develop existing industries will result in larger payrolls in the community eventually bringing about increased domestic, commercial and industrial gas revenues.

Activities of civic agencies to bring about better living conditions in a community will tend to influence present industries to remain, thereby preserving gas revenues. Furthermore, communities having improved living conditions are particularly attractive to industries looking for new plant locations.

Active participation by the gas company in a community development program will tend to develop a greater civic consciousness in the minds of its employees, all of which will make for more effective and economical municipal and civic administration.

Attracting New Enterprise

Participation with civic and municipal bodies in a coordinated effort to develop a community through industrial growth will make it possible to bring attention to the need for keeping taxes low if industries are to be retained and new ones attracted. Not so long ago I learned of a city which, in its desire to hold its present industries and to attract new enterprises, reduced the assessed valuations of industrial property 50 per cent.

I have mentioned but a few of the rewards and by-products that are possible from participation in community development activities. You undoubtedly can add many more.

And now let me mention briefly a few instances of what some gas and electric utilities have done in their desire to be of help in promoting the welfare and growth of their communities. I have already referred to one company which has begun a program of promoting greater consumption of local products by advertising the Epicurean appeal of the oyster. Many favorable responses to this enterprise came from the seafood industry and from many municipal officials, all of whom seemed appreciative of the company's efforts to promote locally grown and produced products. As a result of these responses the company's bills for service for February carried a message designed to promote a greater consumption of chicken and the bills for

March promoted the idea of helping the canners sell more canned goods. Chicken raising and canning are two of the principal industries in the company's territory.

In 1937 several utility companies in New England and Florida inaugurated a reciprocal advertising program. These companies have promoted through exhibits and the distribution of literature, the recreational advantages of their territories alternately in winter and summer in order that the communities themselves might benefit from this seasonal cooperation. Newspapers in both areas have been generous in their approbation of this activity, as is evident from the following editorial comments. One paper states—

"The Florida Public Service Co. is to be commended for their progressiveness in promoting a reciprocal advertising plan with New England communities."

In Portsmouth, New Hampshire, one utility assisted in a material way in the preparation of a report dealing with the development of its harbor.

Many of you may be familiar with the editors' essay contest conducted by the Oklahoma Natural Gas Corporation among all of the newspapers of Oklahoma which was described in the May issue of the MONTHLY. Prizes were awarded for the best papers on the subject "Where Ahead Lies Oklahoma's Greatest Opportunity and How Can We Obtain It?" The newspapers of Oklahoma were most generous in their praise of this constructive activity.

Typical Community Activities

In another southern state, a utility conducted an activity to encourage more and better hog raising in the territory served by the company. Sixteen registered boar-pigs were awarded conditionally to leading farm boys in sixteen counties.

Another company in Florida, serving a territory in which thirty per cent of the population's income is derived from the citrus industry, is carrying on a program to promote greater consumption of citrus fruits.

Many companies the country over have rendered helpful and constructive services to their communities by making available certain of their facilities for meetings and exhibits of civic and commercial organizations. In April

of this year, the gas company in Muskegon, Michigan, arranged for a flower show in its show and home service rooms with the cooperation of the Muskegon Florists' Association. During the three days of the show, over 13,000 people attended in a city of about 40,000 population. The company has received much favorable comment on its civic spirit in providing a worthwhile attraction. An article covering this activity appeared in the July-August issue of the MONTHLY.

Well worthy of mention is a gas company in the southwest which co-operated in reviving a weak department of Home Economics in a co-educational college. The company also took part in a movement to establish a school of Natural Gas Engineering at the same institution. Both of these accomplishments, it is felt, have added substantially to the college's growth in size and public esteem.

And finally, there are many examples all around us of companies which have helped communities materially

to retain existing industries and to attract new ones. A splendid example of this procedure is the program of a utility in New York State which has been running a series of newspaper advertisements since November, 1939, describing in a most interesting way the most important industries in its territory. The company proposes to put these stories into pamphlet form for use in its efforts to attract new enterprises.

You can add from your own experience many more such examples but these few instances will serve to show that there are innumerable ways in which we can be of help to our communities. In each of these successful accomplishments a plan has been carefully prepared and then presented for approval and support to all organizations and individuals interested in seeing it carried out to a successful conclusion. And finally as the plan progresses, citizens of the community have been informed through the use of newspaper advertising and direct contacts.

It was in recognition of the value to

gas companies of promoting the development of the communities they serve that the Commercial Section of the American Gas Association created the Committee on Community Development. This committee is composed of representatives appointed by the affiliated associations.

The committee hopes to act as a clearing house for practical suggestions which may be made available to all gas companies, and through talks before the various associations to bring about a better understanding of the benefits to be gained by gas companies through community development activities.

Dream Kitchen Contest

A CHANCE to win a cash prize for well-designed all-gas kitchens is offered by the Dream Kitchen Contest sponsored by *McCall's Magazine* which is now under way. The contest closes December 31, 1940, and 113 prizes will be awarded, totalling \$1,250.

The Dream Kitchen Contest is open not only to consumers but to people engaged in kitchen-planning work. First prizes of \$200 each will be awarded for the best kitchen planned by (1) a student, (2) a homemaker, and (3) a professional in kitchen planning work. In addition 10 prizes of \$25 each are to be awarded in different categories, including one for an all-gas kitchen. Fifty other prizes will be awarded for the best kitchen from each state.

Winners will be selected on the basis of efficiency of arrangement of work areas, originality of decorating details, and other factors. Entry blanks may be secured by sending a 3¢ stamp to The Modern Homemaker, *McCall's Magazine*, Dayton, Ohio.

A. G. A. Engineer Joins Furnace Co.

ON November 1, H. L. Shufflebarger resigned from the American Gas Association Testing Laboratories to take up new duties with the Lennox Furnace Company of Columbus, Ohio.

Employed in the Laboratories in various capacities, Mr. Shufflebarger secured a thorough training in the testing of different types of appliances, particularly central heating equipment. His previous training was at Ohio State University where he received his degree in mechanical engineering.

Mr. Shufflebarger is the 114th engineer to undertake other duties in the gas industry after a preliminary training at the A. G. A.'s Testing Laboratories. He brings the total number of former Laboratories' engineers who are now actively engaged in various branches of the gas business to 63.

Original Showmanship Spurs CP Sales



Show window of the British Columbia Electric Railway Co., Ltd., in Vancouver, B. C., which, according to Harold Merilees, sales promotion manager, not only stimulated original thinking on the part of dealers but also "aroused more comment than any Vancouver window has done in recent years." The modern range is a CP model.

A Turning Point... in the Base Load

Trend of Domestic Gas Sales



G. F. B. Owens

THE domestic base load has been variously defined. For purposes of this paper, I will consider it to be all the gas used by domestic customers exclusive of house heating. In discussing this subject, I will deal specifically with the experience of The Brooklyn Union Gas Company before and after January, 1936. This date marks a turning point in the trend of our business.

Prior to 1936 our sales had been falling off at an alarming rate. This is indicated by the Chart A showing our annual domestic sales from 1931 to 1935. Whereas our domestic sales were 16,472,000 M.C.F. in 1931, in

Presented before Commercial Section, A. G. A. Convention, Atlantic City, N. J., October 8.

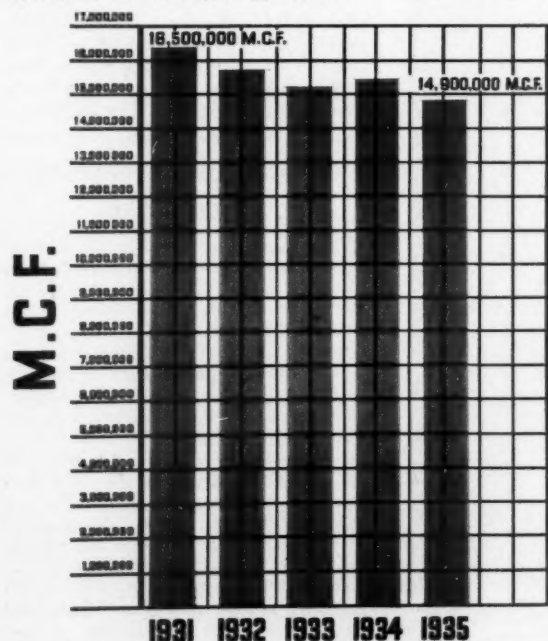


Chart A—Domestic gas sales of The Brooklyn Union Gas Company from 1931 to 1935

By GEORGE F. B. OWENS

Assistant Vice-President, The Brooklyn Union Gas Co., Brooklyn, N. Y.

1935 they totalled 14,856,000 M.C.F., a decline of 1,616,000 M.C.F. or approximately 10%.

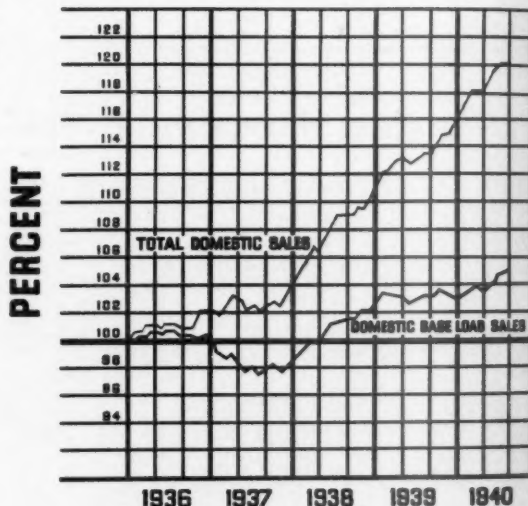
To meet this situation we took drastic action and filed a revised rate schedule in December of 1935. These rates were designed to promote gas for house heating and to lower the cost of other domestic uses, especially water heating. We expended every effort to utilize our new rates with the hope of arresting the downward trend in sales.

It was most important that we add load rapidly and in large volume as it was estimated that the new rates would reduce our annual revenues by approximately \$1,000,000. What has

four years, positive and negative factors must be considered. Gas sales will increase only when the positive factors outweigh the negative factors. This may seem academic but it is important because the negative factors always present and the effective positive factors will be created by sales stimulation and growth.

The negative factors may be listed as follows:

1. Deterioration of residential districts.
2. The effect of replacement of gas water heaters by coal stoves.
3. The large sales of oil burners—31,000 (est.) installed during the last four years.
4. Miscellaneous factors such as:
Changed living habits



THE BROOKLYN UNION GAS COMPANY

Chart B—Trend of the domestic base load since 1936

happened since December, 1935, is a matter of record.

Factors Producing Changes in the Base Load

In analyzing the changes in the base load during the last

Small electrical cooking appliances
Pre-cooked foods
Easy access to the country and shore.
The positive factors may be listed as follows:

1. 30,000 domestic meters added last four years, which is 4½% of Domestic Meters
2. Appliance Sales
Effective load added last four years
Water Heating 350,000 M.C.F.
Refrigeration 850,000 M.C.F.
House Heating 1,700,000 M.C.F.

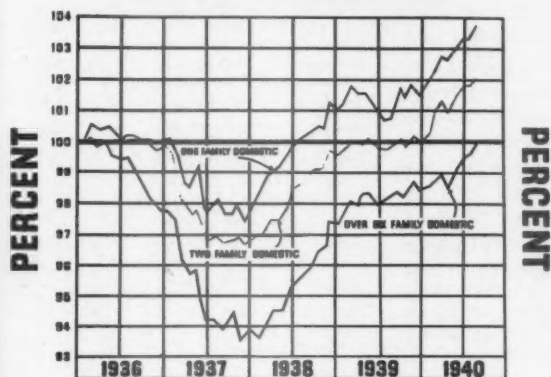
The Trend of the Base Load Since January 1936

On Chart B are shown two curves for domestic sales. The top curve represents the trend of total domestic sales and the lower curve the trend of base load since January, 1936. Both curves cover 12 month periods and each month is expressed as a percent of the twelve months ended January, 1936.

For the twelve month period ended August, 1940, total domestic sales are up 120%; for the same period base load sales are up 105%. Regarding the trend line for the base load, sales

expressed in percent of the twelve months ended January, 1936. Of our total domestic customers, numbering approximately 701,000 the one-family customers represent 18%, the two-family customers 21% and the over six-family or apartment house

12 MONTH MOVING AVERAGE OF SALES-PER METER BY MAJOR DOMESTIC CLASSES



TOTAL DOMESTIC CUSTOMERS	701,000	100 %
ONE FAMILY CUSTOMERS	128,000	18 %
TWO FAMILY CUSTOMERS	145,000	21 %
OVER SIX FAMILY CUSTOMERS	208,000	30 %

Chart C—Trend in domestic base load sales per domestic customer

held up through 1936, slumped off in 1937 and have been steadily upward since the latter part of 1937.

The negative factors continued at such a pace that the load added from increased appliance sales was not apparent in the base load until the end of the year 1937. Since then the base load has been accumulating at a faster rate than the losses.

Because the trend of sales during the last four years has been somewhat obscured by the growth in number of domestic customers, we have prepared a series of curves on Chart C showing the trend of the base load consumption per meter of our three most important classes of domestic customers. As in Chart B twelve month periods are used to remove seasonal variations and are

BASE LOAD HOUSE HEATING

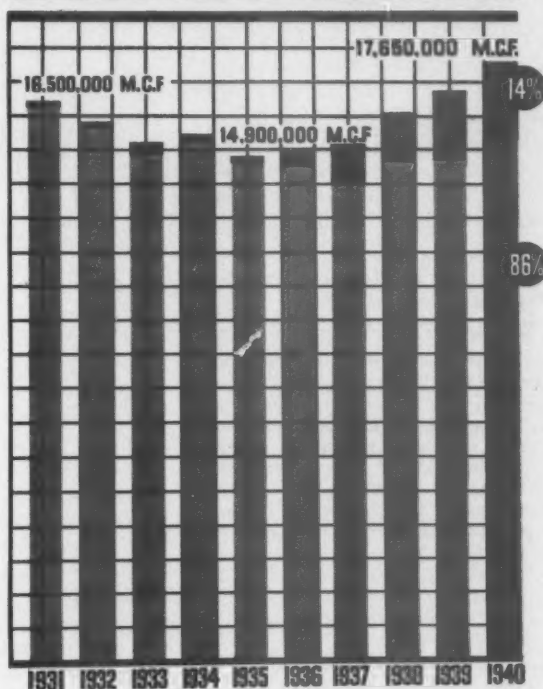


Chart D—Trend of domestic gas sales, showing the effect of house heating on the base load

dwellers 30%.

A study of these curves show the over six-family customers had the greatest decline in gas sales and were the slowest to recover. This loss may be attributed to

decreased cooking consumption because approximately 50% of our total refrigeration sales were made to these customers during the period since January, 1936. If no losses were present this new refrigeration load would have shown an increase of more than 180 cu.ft. per meter.

We sold more than twice as many house heating and water heating units to one-family customers as we did to two-family customers. The effect of these sales is readily apparent, the one-family customers being the least affected and the quickest to recover.

Importance of House Heating in the Trend of the Base Load

By comparing the trend of total domestic sales with the domestic base

load trend in Chart D, house heating has accounted for most of the gas sales increase since January, 1936. Though house heating gas is eliminated from the base load trend, its effect upon the latter is definite. The vital importance of house heating in building up the base load may be summarized as follows:

1. Protects base cooking and refrigeration load.
2. Simplifies replacement of electric refrigeration.
3. Water heater load maintained if existing—added if not.
4. House heating promotion is our best method of increasing and popularizing water heater sales generally.
5. Dramatizes Gas Service.

What Effort Has Been Necessary To Increase the Domestic Base Load

Our efforts over the last four years in halting the losses in domestic sales have been continuous. During the period from 1936 to 1939, we have sold to our 701,000 domestic customers:

- 45,105 ranges or 1 out of every 15.5 domestic meters.
- 60,942 refrigerators or 1 out of every 11.5 domestic meters.

13,192 water heaters or 1 out of every 15 one- and two-family houses.

8,266 house heaters or 1 out of every 24 one- and two-family houses.

This volume of appliance sales amounts to slightly over \$13,000,000. Stated in another way, our dollar sales per domestic customer since January, 1936, amounts to \$18.50.

As a result of these appliance sales the base load has increased 5% since January, 1936, and is still rising.

What Are We Doing To Keep Our Domestic Base Load Rising?

We believe the domestic base load will continue to rise by following the activities listed below.

1. Maintaining an able and enthusiastic sales department that will successfully promote cooking, water heating, refrigeration and house heating.
2. Integrating New Business and Commercial Departments to better public relations and increase sales.
3. Maintaining employee enthusiasm for the importance of appliance sales to them, to the Company and to the customers they meet.
4. Continually promoting Dealer Cooperation.
5. Intensifying Home Service activities to

obtain greater and more diversified use of gas for cooking in the home.

6. Increasing the quality of customer service commensurate with sound business practice.
7. Maintaining a continuous study of the economics of the gas business.
8. Diligent appliance research and market studies.
9. Reducing gas rates whenever possible.
10. Cooperating in national activities to spread the story and increase the use of gas.
11. Selling the public that the gas industry is modern, vital and growing.

Conclusion

This last activity is a most important one for us today. The tasks and burdens of the last decade have caused a recrudescence in our industry. It is this renewed activity, this change of attitude in our thinking and doing that makes us different from yesterday. The consumer, the investor and the government must become aware of our awakened progressiveness. Aware of this change they become our greatest asset—a receptive public. There is a job to do—a challenge to meet. I believe we will meet this challenge of selling the public that the gas industry is modern, vital and growing.

Gas Utility Takes Steps To Meet National Defense Requirements

NOTING an increase in sales of gas for industrial purposes in the Philadelphia area, Henry B. Bryans, executive vice-president of the Philadelphia Electric Company, recently told an engineering and operating group that the gas department of the company was fully prepared to meet all requirements of industry in the Philadelphia area arising out of national defense preparations. He reviewed developments of the year in the company's gas plants as they contribute to present-day preparedness for any increased send-out necessary.

"Many local industrial plants participating in the defense program are large users of gas," Mr. Bryans said. "Sales of gas for industrial purposes are 46 per cent greater than last year. As payrolls expand, an increase in residential sales may also be expected."

"As part of the Philadelphia Electric Company's contribution to national defense, the Gas Department must keep abreast of the increased requirements for service, not only by the installation of new equipment, but by getting every possible cubic foot of capacity out of existing equipment."

"The reformed oil gas plant at Chester is a very important unit of the Philadelphia

Electric Company system, producing about two-thirds of all the gas sent out. Improvements to existing equipment, and in methods of operation have increased the generating capacity of this plant from 25,000 MCF to 28,500 MCF per day, or 14 per cent. The ultimate capacity of the existing generators at Tilghman Street is now estimated at 30,000 MCF to 35,000 MCF per day.

"The increased capacity was obtained as follows:

"1. By increasing the specific gravity of the gas produced from .63 to .68. This change has no detrimental effect on the operation of appliances, and increases set capacity by about 12 per cent. The increase in gravity was made possible by connections installed at West Conshohocken plant to permit control of the gravity sent out from that plant to the Main Line Division. Formerly, whenever West Conshohocken gas was supplied to the Main Line Division, the reduction in gravity caused unsatisfactory appliance operation, and placed an upper limit on the Chester gravity. This upper limit was removed when the gravity control connections were installed.

"2. By the installation of additional scrubbing equipment to clean and cool the gas immediately as it leaves the reformed

gas set. The additional cooling reduces the volume to be handled through the plant mains about 40 per cent, and the removal of tar and carbon particles prevents the accumulation of these materials in the mains, which formerly resulted in back pressure and loss of set capacity.

"3. Another factor in the stepping up of capacity has been a rearrangement of checker brick in the carburetter and superheater. The original arrangement, while very efficient for water gas operation, was not suited to the production of reformed oil gas. Rearranging the checkers reduced pressure loss through the set and permitted a higher air rate during the blow and blow run. This results in more time during each cycle for gas making, and greater capacity.

"4. Another development made during the current year was a new operating cycle. This change reduced the coke used per MCF of gas, about 30 per cent, and contributes to higher capacity by reducing the time required for charging and fire cleaning.

"5. In order that the oil gas flow to the sets may keep pace with the increased rates of production, the oil gas pressure is being stepped up. This change will also improve the control of the rate of flow of oil gas during the reforming portion of the cycle.

"While all of the above changes are not complete, results of the program are already evident. Heretofore, due to back pressure and other difficulties, it has never been possible to obtain as much capacity per set when three sets were in operation, as could be obtained with one set operating alone. On October 22, however, three sets produced a total 1200 MCF per hour, or three times the capacity of one set.

"It is necessary to provide adequate means of sending out these greater quantities of gas. To this end, a booster-compressor is being installed at Upper Darby, which will have the effect of increasing the capacity of the major Chester-Upper Darby transmission main by 20 per cent and will make it unnecessary to carry excessive pumping pressure at Chester.

"In view of the important part which gas applications play in industrial processing, there can be no doubt that the picture I have briefly presented of our gas activities shows that in this department we are well prepared to face what the future may bring forth.

"It takes good men and good equipment to make a great utility organization. We have both. That is why in this period when the nation is taking stock of all its resources we can look any questioner straight in the face when he asks: 'Is the Philadelphia Electric Company prepared?' The answer is yes."

A. G. A. Approval Required

THE Oklahoma Corporation Commission has issued an order making it mandatory that gas-burning domestic appliances operated on liquefied petroleum gases must comply with the American Gas Association requirements. The regulation went into effect October 15.

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Gas Workers Play Heroic Part in Saving St. Paul's Cathedral

GAS industry employees in England are taking a courageous and sometimes heroic part in the defense of their country against bombing raids. In their ceaseless efforts to maintain gas service at all times, they are called upon to perform many tasks under dangerous conditions. One of the most gallant tasks so far performed was their part in the saving St. Paul's Cathedral from destruction by a time bomb. The following account of this action was written by a special correspondent of the London *Times* and published on September 18:

"Civilian workers shared gallantly in the grand piece of work which saved St. Paul's Cathedral for Britain and the world. At one time the crater made by the time bomb was licked by flames from a burning gas main. This and a second fire which broke out later near by were put out by workers of the gas company who toiled with the same disregard of danger as was shown by the men of the Royal Engineers who finally removed the bomb. But they worked deftly and quickly; they got through in an hour or two work which normally, taking all the usual precautions, would have occupied two days. Time was all-important, and it was because these men overcame the two outbreaks of fire that the soldiers were able to get through to the bomb, remove it, and take it where it could be exploded without causing a major disaster.

All in the Day's Work

"Yesterday I talked with some of these men. They were modest about their part, but, piecing together their undramatic accounts, one realized that they too risked all that St. Paul's might be saved, and this impression was confirmed by experts of the Gas Light and Coke Company who were in a position to assess the value of the work done by their men. For more than 12 hours, relieving each other from time to time, 10 or 12 gas workers were busy around the crater in which lay a ton of high explosive.

"Their start of this job was reported to their headquarters in matter-of-fact language: 'Attended at 4 o'clock Thursday morning and found a leakage in the crater of an unexploded bomb. . . . ' So the story goes on to the final sentence: 'Job cleared up by 4:30. The police were informed so that the R.E.'s could resume operations.' But in between brave men had worked hard and long, without refreshments and within a few feet of a heavy bomb which might have gone off at any moment.

"A foreman who was in charge of the operations for some hours said that when he arrived he found two Royal Engineers badly gassed. They were about to be given milk, which he knocked away, for it was the wrong treatment, and he and a mate applied artificial respiration. Then he and three of his workers cut off the supply of

gas and got the fire brigade to flood the main with water. Later there was a second outbreak of the fire, and everyone flung himself to the ground, except Lieutenant Davies, who quite unperturbed, remained standing on the edge of the crater. Again the flow of gas was stopped and the fire subdued.

"All this time the soldiers and the workers of the Gas Light and Coke Company had a wide area around St. Paul's entirely to themselves. All noise and movement in this usually busy part of the City was stilled. The quiet was unreal, the men say; indeed, where all around is bustle as a rule it was almost sinister and certainly disquieting.

"I was privileged yesterday to visit the underground headquarters from which the battle against damaged gas mains is directed. Thorough precautions have been taken. If these headquarters were to be bombed out of action two alternative centers are ready to be brought into use. As it is, it is working smoothly and continuously, quickly reducing to a minimum damage and inconvenience caused by Nazi bombs.

"On a large map is shown the 540 square miles of territory of the Gas Light and Coke Company, and pins with tops of different colors show exactly where gas mains have been damaged by bombs and the state of repairs. In charge is the Distribution Engineer. In peace-time his job is to see

that the distribution of gas is fully maintained; in war-time his job is essentially the same, except that he has someone deliberately working to make his task more difficult. In peace-time he has his gangs ready to deal with damage or outbreaks of fire; in war-time he is much more prepared. He is running a continuous shift system, and wherever a bomb may drop causing fire or damage to a main he can dispatch a group of tough and skilled workers, who in quick time will have a fire out and in not much longer will have the main repaired and working again.

"The map, with its colored pins, is an encouraging pointer, for it tells a tale of triumph. As fast as the bombers damage any gas mains the company is repairing them. One pin stands for 'job completed.' It is in steady demand as another damaged main is brought back into use. Men here work and sleep on the job. The company's shock troops are ready to go into action over the 24 hours of each day. I saw a cradle in one underground passage, and the Distribution Engineer explained: 'The foreman sleeps on the job, and whenever there is a raid his wife and baby come in here for shelter.'"

Offer New Appliance Financing Plan

UNDER a new cooperative financing plan announced November 18 by E. F. Jeffe, vice-president, the Consolidated Edison System Companies offer their manufacturing and business customers an opportunity to finance both the purchase and installation of any appliance or equipment operated by gas or electricity on terms up to three years at low finance charges.

Last June the system companies announced a similar plan which was designed to help business and industry in New York City expand and modernize. It represented the first time that commercial and industrial establishments were enabled to purchase equipment using gas or electricity on a three-year finance plan. The response, according to Mr. Jeffe, was gratifying and the new plan is expected to produce even better results because it includes the financing of the installation of the equipment itself; the terms, as worked out by the system companies in cooperation with the National City Bank of New York, were designed especially to provide for small retail customers as well as the larger factories and businesses.

All types of gas and electric equipment are included—such as motors, boilers and furnaces, refrigeration, air conditioning, and heating and ventilating equipment, lighting, meat grinders and slicers, coffee grinders, pressing irons, signs, and the like.

The companies will use the metropolitan newspapers and other advertising media, including direct mail, radio and so forth in promoting the new plan.

National Contest Winner



F. A. Hollomon (right) of the Noland Company, Washington, D. C., receives a national water heater contest prize from Edgar Morris, Washington distributor for The Pittsburg Water Heater Corporation who conducted the contest. Mr. Hollomon won an engraved watch and a substantial cash prize for his leadership in gas water heater sales.



Assembly space at the entrance end of the joint exhibit—for introductions and definitions of the prospect's problems and interests.

THE CHEF AND HIS BOSS EYE GAS



One sawtooth of the 100-ft. backwall for each manufacturer: Standard Gas Equipment Corp., American Stove Co., Detroit Michigan Stove Co., The G. S. Blodgett Co., Inc., J. C. Pitman & Sons, Inc., Ershler & Krukin, Inc.

SO that 61,255 hotel and restaurant men (chefs and bosses, buyers and managers) might size up modern gas-fueled food service equipment as it will be available in 1941—the Industrial and Commercial Gas Section of the American Gas Association and the Consolidated Edison Co. of New York, Inc., in cooperation with 6 leading manufacturers of commercial gas cooking equipment, staged a biggest-ever Joint Gas Display at the 25th Annual National Hotel Exposition, Grand Central Palace, New York City, November 11 to 15. The display covered the entire north wall of the main exhibit floor, included 46 hotel kitchen equipment units, and was manned at all times by 25 to 45 non-residential gas men. Both the chef and his boss got an eye-ful.

Never before did the gas industry have such complete, flexible, economical and convenient equipment to offer in the quantity cookery field. Never before did it do a better job of showing it. These pictures show some of the equipment, some of the men, some of the interest by hotel and restaurant folk. They can't show the important things—orders, sales leads, competitive advantages, good will, and the major buying interests of a high-rate high-volume coast-to-coast gas market compressed into one building in 5 days.

In battery (like this), or as single units, were: 3 hot-top sections, 2 uniform-heat-tops, 2 heavy duty open tops, 5 fry tops, 3 cafe ranges, 6 broilers, 2 salamanders, 3 range ovens, 3 finishing ovens, 5 deck ovens, 7 deep fat fryers, 2 counter fryers, 2 doughnut units, 1 dry steam table—all improved.



American Gas Association MONTHLY



Ease of servicing—a vital feature of Blodgett's new ovens to C. G. VanNote, Public Service Elec. & Gas Co., Newark. Plate retarders for light-bottom baking (high-ratio or long-bake work), spline connection of control valve to dial, and all-welded design—three other innovations.

George F. B. Owens, Brooklyn Union's Ass't. V. P. learns about Magic Chef's new louvre control of oven bottom heat from Wm. H. Frick, Heavy Duty Mgr. for American Stove. A "gear-shift" broiler mechanism made more news—saves muscle, space, cleaning and burned hands.

Doughnut frying, a job for specialists like Frialator, agree: T. J. Gallagher, Peoples Gas Light & Coke, W. D. Crouch, Robertshaw Thermostat, James F. Pitman, J. C. Pitman & Sons, E. V. Fineran, Washington Gas Light, Bayard D. Evans, Evans Coffee Shop, Arlington, Va.



The gas-fired waterless steam table offers sectional operation of different pan groups, faster food warm-ups, fuel savings, and less heat and moisture in the kitchen—explains S. H. Ershler, maker, to Consolidated Edison's C. F. Sevenoaks and The Croydon Hotel's R. Letsch.

"25 years an exhibitor"—Consolidated of N. Y. has done its bit for each National Hotel Show since the first—built this display; shared the cost with the A. G. A.; presented a rotating picture story (in the niche shown) about gas in New York hotel and institutional kitchens.

Vulcan christened a whole new line—in easy-to-clean crinkle finish, with solid oven trays for larger loading, new hot-top aeration, bigger fire-tubes for faster fat temperature recovery, "expando" half-width sections. Garland popped up with a broiler-griddle combination in battery.



Not in the A. G. A. Display, but at the Show, were scores of other news-making gas units: (left) H. N. Christmas, New York, demonstrates his gas roto-broiler to Tom Gallagher, Chicago, and Jerry Healy, Springfield, Mass. (center) B. Sanders, student, A. O. Wunsch, master baker, and J.

Casalbore, teacher, use gas ovens, fryers, and confectionery stoves to show how New York's schools train young bakers. (right) Walt Crouch, Robertshaw Thermostat, discusses control design with Bob Wilson, National Restaurant Ass'n., and Les Dubberke, Milwaukee Gas Light.

Utility Executive Dies; Was A. G. A. Director



L. B. Eichengreen

L EON EICHEN-
GREEN, vice-
president of the
Philadelphia Elec-
tric Company in
charge of gas oper-
ations and proper-
ties, died Sunday
evening, November
10, after a brief ill-
ness. He was 56
years of age, and a
native of Clay Cen-
ter, Kansas.

Mr. Eichengreen
was a director of the American Gas Asso-
ciation as well as a past-president of the
Pennsylvania Gas Association.

After graduating from the University of
Pennsylvania as a mechanical engineer, he
entered the employ of the United Gas Im-
provement Company, on March 1, 1909. A
series of promotions followed until, in
1923, he was made general superintendent
of gas operations. He was appointed man-
ager of the gas department of the Philadel-
phia Electric Company in 1928, and was
elected vice-president of the company in
1937.

He is survived by his widow, the former
Helen L. Burleigh, of Merchantville, New
Jersey, and three daughters. His mother,
Mrs. Pauline B. Eichengreen, nearing 80,
also is living.

Gas Course Student Wins \$50 Award

WILLIAM R. PETERSON, of the
Minneapolis Gas Light Company,
Minneapolis, Minn., is the winner of the
\$50 annual award established by the Per-
sonnel Practices Committee of the American
Gas Association for the year's outstanding
student in the home study course in Ameri-
can Gas Practice at Columbia University.
The selection of Mr. Peterson as the prize-
winner was made upon the recommendation
of Professor Jerome J. Morgan, of Colum-
bia University, who conducts the gas course.
H. L. Donaldson, of The Equitable Gas Co.
of Pittsburgh, Pa., is chairman of the com-
mittee making the award.

This \$50 prize, which is similar to an
award made in connection with the home
study course on Natural Gas at the Uni-
versity of Kansas, is derived from the Trus-
tees Gas Educational Fund established some
years ago for an educational purpose of
value to the gas industry. The present
award was established two years ago to
"stimulate the interest of the younger men
to acquire more knowledge of the gas in-
dustry."

Mr. Peterson, who is 31 years of age, was
educated in the Minnesota public schools



William R. Peterson (left), winner of the
"best student" award in the Columbia gas
course, receiving a check from Harry K.
Wrench, vice-president of the Minneapolis
Gas Light Co.

and received the degree of Bachelor of
Chemical Engineering in 1931. He enrolled
in the course in American Gas Practice in
July 1939, and completed both Parts I and
II of the course in May, 1940.

Park Aid Cited

AMONG the nine individuals and organ-
izations honored at a luncheon on
November 7 by the Park Association of
New York City with citations of merit for
"outstanding service to the parks of New
York City," was The Brooklyn Union Gas
Company. The citation was received by
Clifford E. Paige, president.

Robinson Heads East Ohio Gas Company, Peoples Natural Elects Borger



J. French Robinson



Edward M. Borger

J. FRENCH ROB-
INSON, Pitts-
burgh, has been
elected president and
a director of The
East Ohio Gas Com-
pany, Cleveland, suc-
ceeding Charles E.
Gallagher, who has
been elected chair-
man of the board.

Mr. Robinson has
been president of
Peoples since 1936,
when he succeeded
the late J. B. Ton-
kin, who retired.
He is vice-chairman
of the Natural Gas
Section of the Ameri-
can Gas Association
and chairman of the
Program Committee
in charge of the
Natural Gas Con-
vention which takes
place in Dallas,
Texas, May 5-8, 1941.

An Introduction to the *Kinetic Theory of
Gases* by Sir James Jeans, O. M., F. R. S.

The author states that this book is in-
tended to provide such knowledge of the
kinetic theory as is required by the average
serious student of Physics and Physical
Chemistry. From the viewpoint of the gas
industry, this means that the book is rather
theoretical for use by the typical gas engi-
neer or gas chemist.

The kinetic theory of gases is quite com-
pletely covered in this text as well as the
relations of this theory to physical prop-
erties such as pressure, viscosity, diffusion,
and heat conduction. Its contents should
be helpful to those interested in the phe-
nomena occurring in internal combustion
engine cylinders and in the compression
of gases to high pressures.

The introduction makes use of several
admirable analogies in explaining the phys-
ical meaning of the kinetic theory of gases
in such fashion as to be readily compre-
hended.

The price is \$3.50 per copy and it is
available from The Macmillan Company,
New York, and The University Press, Cam-
bridge, England.—S. SETCHELL.

Edward M. Borger has been selected to
succeed Mr. Robinson as president of The
Peoples Natural Gas Company, Pittsburgh.
Mr. Borger, who has spent his entire busi-
ness life with this company and its affil-
iates, has been general counsel for the Peo-
ples company, Hope Natural Gas Company,
New York State Natural Gas Corporation
and affiliated companies since 1935. He
joined this group in 1922.

Mr. Robinson was elected vice-president
of The Peoples Natural Gas Company and
The Columbia Natural Gas Company in
1933, and was made president of both com-
panies in 1936. Under his direction, Col-
umbia has since consolidated with Peoples.

He is a member of the American Insti-
tute of Mining and Metallurgical Engineers,
American Association of Petroleum Geolo-
gists, American Petroleum Institute, Ameri-
can Mining Congress, American Gas Asso-
ciation, and is a director of the Pennsylvania
Natural Gas Men's Association, the Engi-
neers Society of Western Pennsylvania, and
the Union National Bank of Pittsburgh.

Heads A. G. A. Personnel Practices Committee



Roland S. Child

ROLAND S. CHILD, personnel manager of the Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y., has been appointed chairman of the Committee on Personnel Practices of the American Gas Association by T. J. Strickler, president of the Association.

This committee is now in its fifth year as an Association activity and is engaged in a continuing study of the industrial relations problems of the gas industry.

As a member of the committee for several years, Mr. Child has made important contributions to its work. An expert on pensions and thrift plans, Mr. Child made an authoritative study of employee pension plans in 1937 which was included in the committee's annual report and published in the February, 1938, issue of the American Gas Association MONTHLY.

Mr. Child has been in charge of personnel work for The Central Hudson Gas and Electric Corporation since 1932 and has been associated with that company since 1920. He is a graduate of the Brooklyn Polytechnic Institute, receiving his Electrical Engineering degree in 1906 and a Master of Science degree in 1909. From 1906 to 1909, he was an instructor in mathematics at Brooklyn Polytechnic.

He entered public utility work in 1909 with the W. S. Barstow Company in New York City which was engaged in operating, managing and engineering work. Mr. Child's eight years' service with this company ended in 1917 when he joined the U. S. Army during the World War. He served as a captain, Engineering Division, Office of Chief Ordnance Office, A.E.F., from 1917 to 1919 and also served on the Mexican Border with the First New York Cavalry. After the war, he was a member of the Technical Advisory Committee of the War Department Claims Board until he joined the Central Hudson Gas and Electric Corporation in 1920.

Mid-Southeastern Gas Association

JR. A. HOBSON, JR., director of Public Utilities in Richmond, Va., was elected president of the Mid-Southeastern Gas Association at the two-day Institute for Gas Plant Operators held by the Association at Raleigh, N. C., Nov. 14-15. He succeeds S. L. Duckett of Charlotte.

Other officers, named at a banquet during the meeting are Ralph Fry, of Raleigh, first vice-president; E. J. Meade of Roanoke, Va., second vice-president; and C. J. Smith of

Charleston, S. C., and Rod Peters of Washington, new members of the board of directors.

Speakers at the banquet were Stanley Winborne, North Carolina State Utilities Commissioner; C. G. Segeler, of the American Gas Association, and Herbert Watson of the Association of Gas Appliance and Equipment Manufacturers.

At the closing session, tribute was paid to Dr. E. E. Randolph, head of the North Carolina State College Department of Chemical Engineering, for his contributions to the gas industry in North Carolina. By unanimous vote of the association, he was elected an honorary life member upon recommendation of the board of directors.

Dr. Randolph has conducted considerable

research on illuminating gas and problems of the gas industry and has been active in conducting the gas operators' institute since it started five years ago. Facilities of his department have been thrown open to the operators for laboratory demonstrations.

About 125 men, representing the gas industry of the southeast, appeared on the program, which was arranged by Director Ruggles of the State College Extension Division in cooperation with Dr. Randolph.

Among the speakers were: A. S. Miller, instructor in economics, North Carolina State College, and Dr. William McGehee, head of the Department of Psychology; E. O. Werba, Atlanta, Ga., and C. W. Haner, Bluefield, W. Va.

CONVENTION CALENDAR

DECEMBER

- Dec. 2-4 Joint Accounting Conference, American Gas Association and Edison Electric Institute Book-Cadillac Hotel, Detroit, Mich.
- 5-6 A. M. A. Insurance Division Palmer House, Chicago, Ill.
- 6 Midwest Industrial Gas Sales Council Palmer House, Chicago, Ill.
- 9-10 National Industrial Council, Waldorf-Astoria Hotel, New York, N. Y.

1941

JANUARY

- Jan. 27-29 American Society of Heating and Ventilating Engineers Hotel Muehlebach, Kansas City, Mo.

FEBRUARY

- Feb. 10-12 Southern Gas Association and A. G. A. Southern-Southwestern Regional Gas Sales Conference Hotel Adolphus, Dallas, Texas.
- 17-18 A. G. A. Mid-West Regional Gas Sales Conference Chicago, Ill.

MARCH

- Mar. 13-14 A. G. A. Industrial Gas Sales Conference Baltimore, Md.
- 27-28 New England Gas Association Hotel Statler, Boston, Mass.

APRIL

- Apr. 14-16 Mid-West Gas Association Hotel Nicollet, Minneapolis, Minn.

- 15-17 Southwestern Gas Measurement Short Course University of Oklahoma, Norman, Okla.
- 21-22 Gas Meters Association of Florida and South Georgia Hollywood, Fla.
- 21-23 A. G. A. Distribution Conference Pittsburgh, Pa.
- 24-25 A. G. A. Hotel, Restaurant and Commercial Sales Conference Chicago, Ill.

MAY

- May 5-8 A. G. A. Natural Gas Section Convention Adolphus and Baker Hotels, Dallas, Texas.
- 12-14 Pennsylvania Gas Association Skytop, Pa.
- 19-21 A. G. A. Production and Chemical Conference New York, N. Y.
- 20-21 Canadian Gas Association Hamilton, Ontario.
- 22-23 Natural Gas and Petroleum Association of Canada Hamilton, Ontario.

JUNE

- June 2-5 Edison Electric Institute Buffalo, New York.
- 16-20 American Society of Mechanical Engineers Kansas City, Mo.

SEPTEMBER

- Sept. 8-10 Mid-West Gas School and Conference Ames, Iowa.

OCTOBER

- Oct. 6-10 National Safety Congress and Exposition Chicago, Ill.



Accounting SECTION

E. N. KELLER, Chairman
LYMAN L. DYER, Vice-Chairman
O. W. BREWER, Secretary

Customer Angles in Extending Service to New Homes

By E. C. WEGENER

Public Service Co. of Northern
Illinois, Chicago, Ill.*

ONE method of determining whether a gas company deserves favorable customer opinion is to study its methods of handling the problems presented by new home construction. Alertness in anticipating and meeting the needs is essential if the company wants the good will of the home builders.

The customer in his new home will recite to any listening ear a story of the planning, construction, and occupancy of his residence, and it is a matter of concern to the gas industry if he opens up with—"And let me tell you my sad experience with the gas company." He may tell why gas lost out to a competitive fuel "because they didn't even know I was building until I applied for service." Or he may relate how "their operating department got around the day after the lawn was graded, seeded and planted, and dug it all up to lay the service pipe."

Faulty Management Condemned

In the experience of those who meet customers, charges of "unbusinesslike" and "stupid" are the most damning, for they are generally directed at management's policy. Such faults are even harder on the company's reputation than broken promises or lack of courtesy because the customer may write off these latter faults as the errors of individual employees.

The kind of difficulties which new residence customers criticize most severely are of the more serious type, namely, those which are properly charged to faulty management. Although occurrence may not be frequent, the increasing volume of new home construction provides the possibility of more failures with resulting damage to customer opinion. Those whose chief concern is customer relations believe the problem is important enough to warrant increased attention. There are a number of reasons for this point of view:

(a) Experience in handling complaints involving failure to meet customer expectancy, which analysis shows could have been avoided by proper planning and organization.

(b) Recognition of the fact that home builders are confronted with many gas service and gas equipment problems of which they know but little and need assistance.

*Mr. Wegener is chairman of a Customer Relations' subcommittee and this paper covered his report to the A. G. A. Convention in October.

(c) Knowledge of the highly competitive market in the fields of house heating, cooking, water heating, and refrigeration.

(d) Recognized need for personalizing our service, for customer relations reasons.

Thus the problem is to arrange a streamlined handling of the gas company routine covering new home building from the moment somebody decides to build a home until it is completely equipped with gas appliances and ready to be occupied. All this must be done in a manner which will convince the customer that the gas company is a courteous, businesslike organization.

The customer relations approach is a good angle from which to attack this problem. If viewed strictly from an operating viewpoint there might be an indication of some feeling that the sales department is not "cost minded" and will sacrifice anything, even the operating department's budget, if necessary, to get sales. Or there might be a suggestion, well founded or otherwise, that the salesman doesn't know enough about the practical construction end of the business to avoid impossible promises and stipulations. Whereas, if approached from the sales point of view alone, the slant might be that the operating department is not "sales minded" and always says, "Mr. Customer, this will cost you blank number of dollars," without realizing what today's competition means.

While certainly there is a common interest between the sales department and the operating department in the improvement of sales and reduction of construction costs, it may be that departmentalization of these responsibilities prevents unanimity of thought. There is, however, the obvious common denominator of customer mindedness. The desire of all concerned to have the company well thought of, to avoid charges of indifference or procrastination, coupled with the satisfaction which comes from being businesslike, is the best basis on which to organize to help both ourselves and the new home builder.

Some companies represented by members of the committee preparing this report have in fact organized functionally to han-

dle this problem. The title of the division that does this work in those companies already so organized varies. Some call it an Architects' Service Bureau; others call it the Builders' Division. For purposes of this discussion we will call it the New Building Service Division. Naturally the area of the territory and amount of new building in progress directly affect the size of the division and also the scope of its work.

In most companies the New Building Service is primarily a sales function and because the specific delegated tasks are essentially sales, the work is usually carried on as a sales promotion activity. Yet there are so many by-products of its selling efforts in the new home field, which, if properly organized, react in favor of the service, engineering, construction and distribution phases of our business, that the value from all standpoints must not be underestimated.

Recognizing that the first function of the Division is to encourage wider use of gas equipment, it is the purpose of this paper to show how the New Building service is of value to those departments of the company who are charged directly with the responsibility of handling the work of making gas available.

Assume then that a New Building Service is to be organized. What will be some of its specific objectives and how will they be attained? Six typical functions taken from lists provided by a number of companies which have successfully organized to solve this problem follow:

1. Keeping Alert to New and Contemplated Building

This is one of the more important tasks. To be of the utmost service to the prospective occupant of a new home and to create the most sales of gas for the company, the New Building Service must get on the job as soon as possible after the intention to construct a home is born in the mind of the prospective builder. Real estate transfers, municipal permits, or even community gossip may be the source of information. Dodge reports will be of service. These are published by the F. W. Dodge Corporation, which has offices in the principal cities, and inform clients who subscribe to their building report service about the status of building projects from the time permits are issued.

When advance information on proposed home construction is relayed by the

New Building Service to the Customers Order Department, it sets into motion the entire routine of the company involved in making gas available. The engineering and operating departments can plan their work far ahead of the customer's application. Estimates of the cost of extending the main can be prepared, and approval obtained. City and State permits can be applied for, and the physical work can be scheduled so that it will be conveniently completed before the time when gas service is actually to be used. Such advance knowledge enables the construction to be done on a more economical basis than is the case when the job must be rushed.

Advance information is vital to the New Building Service representative, who will work with the architect or owner for as completely an all-gas installation as possible. Such coordination minimizes the number of special jobs. By following the orderly procedure of giving the operating department ample time to plan its work, the company is enabled to show tangible evidence that the work is in progress. Thus, the customer need have no misgivings that gas will not be ready when the house is completed.

2. Assisting Architects

The personnel of the New Building Service Division include trained individuals who are qualified to act as advisers to architects on gas matters. These men give architects competent recommendations on experience with insulations, heat losses, utility rooms, kitchen layouts and other features of design and equipment. For example, submitting such information to the architect as the required space dimensions needed for a gas refrigerator or a modern gas range so that he can allow sufficient space in the kitchen for this equipment, is a common but important detail.

Clients of architects occasionally give them some pet idea of design or layout to include in the specifications which is difficult for the architect to do. The New Building representative is available on cases of this kind to help work out a solution. Usually he is able to offer constructive ideas, especially if the problem is related to gas.

As a result of giving reliable operating cost data to architects, the architects are becoming sold on the merits of gas heating in the homes they design. In conjunction with this they realize the necessity of specifying a suitable flue liner at the time of construction to prevent inconvenience and expense at some later date.

With the advent of automatic house heating, basement space is being utilized for recreational purposes. Architects sometimes design new homes with the recreation room in some portion of the basement which is normally the location of the gas service entrance. Naturally the architect does not want to have the meter, regulator and other such gas equipment in the recreation room, so by working with the architect and

the company's inspector, arrangements can be made for a meter location which conforms to the design of the basement.

Some New Building Divisions occasionally prepare printed material for architects. Also, they arrange to give wide distribution of reprints of interesting gas articles to persons affiliated with the building industry and to individual home builders.

3. Working with Builders and Contractors

An equally important function of the New Building Service is close cooperation with the company's construction department by informing it of service pipe and meter

Accounting Conference Dec. 2-4

The Fourth National Accounting Conference sponsored by the American Gas Association and the Edison Electric Institute takes place December 2, 3 and 4 at the Book-Cadillac Hotel, Detroit, Michigan. A report on this conference will appear in the January issue of the A.G.A. MONTHLY.

set installation dates which will meet builders' and contractors' requirements. Arrangements are frequently made for an inspector to call and submit the specifications and restrictions of meter location to contractors in advance of the house piping. Because of this service, contractors are able to avoid doing incorrect piping which later must necessarily be changed, thereby increasing costs.

At the same time the inspector can inform the contractor on the company's various requirements that must be met before service will be turned on. Thus there is no delay in establishing service because of such things as flue pipes not in, gas heating installation not completed, no appliances connected, etc. Contractors have voiced keen appreciation of this service.

The company also makes a small saving in the cost of installing the service piping if the work is done before landscaping is started, inasmuch as ordinary practice is to replace top soil in the condition found. Naturally, if hedges, sod, and sidewalks are in, the cost of digging and replacement is somewhat higher than if the work were done prior to that time.

Through knowledge of gas equipment on each job, the New Building Representative is able to be certain that the operation of the various appliances is correct from the start. An inspection of the gas heating equipment made before it is put into regular service, for example, frequently eliminates a complaint on the first bill rendered. This is particularly true in cases where gas

heat is used for drying plaster. Also, he is able to inform the operating department of the amount of gas that will be used on the premises, thus enabling them to set the proper size gas meter. Later, if the customer has purchased a domestic appliance that needs explanation of its proper use, the Home Service Department is notified to make the demonstration.

4. Cooperating with Realtors and Subdividers

The New Building Division works closely with the Service Department in assisting realtors in making gas available in subdivisions where the homes are actually started or where the company can be positive that the proposed homes are to be built. Thus the Service Department can start its survey of new developments at an early date. Every company has had sad experiences with some realtors who have perhaps misrepresented the number of houses to be built or the starting date for construction of these houses. This is usually done to "high pressure" the company into extending its mains, thus improving the selling possibilities of the lots. Due to this type of realtor, the company may lose confidence and adopt a negative attitude rather than one of progress which, after all, is the kind it prefers to have. The New Building Service representatives can cement friendly relations with realtors so well that they are able to get authentic information from them regarding their proposed projects. If there is doubt concerning whether or not some enthusiastic realtor will go through with his project, the engineering and office work is completed in advance and actual installation of the main is deferred until the house construction is begun.

After the New Building representative has sold the value of his services to the realtor he frequently gets information on subdivision development that ordinarily would not be divulged publicly until a much later date. This is valuable to the company because if it is definitely known that an entire area is to be developed, mains can be extended throughout the area as one job rather than on a piecemeal basis.

Where it is known that a sufficient number of homes are to be built to warrant a free extension, the work is dispatched through the Customer Order Department to the Engineering and Operating Departments in sufficient time so that they can do their office and field work and then schedule the job as regular routine. The operating economics of such procedure are obvious. At the same time, several companies state that as a result of foresight in extending gas service throughout certain new subdivisions they have been able to secure the use of gas for house heating in a high percentage of the houses. Realizing the advantages of gas, most of these houses also use it for all of the "Four Big Jobs."

Of course many new homes are so located in relation to the company's mains that an advance deposit or some kind of a

monthly minimum bill guarantee is necessary before service can be extended to reach them. In these cases the New Building representative arranges for data on initial costs to be submitted by the proper department to the realtor or owner in sufficient time so that delays in obtaining service are not chargeable to the company.

5. Cooperating with the Individual Home Builder

Because the New Building representative has a wealth of information at his finger tips concerning home construction, he is much sought after by individual prospective builders. The owner of a new home frequently needs and wants help on determining the most suitable type and size of gas equipment and appliances. The New Building Service holds itself responsible to be prepared to give the desired information directly. Records show that these people tend to accept his recommendations when equipping their homes.

The company value of reaching the individual prospective home builder before the specifications are completed and before the loan is negotiated must not be underestimated. After the loan is approved under certain specifications, to make equipment changes involves many technicalities and usually the customer prefers to proceed without making the changes. In approaching the customer at an early date, he is open minded on kinds of equipment and the New Building representative likely will be successful in putting across the gas story.

Some companies have such a well organized New Building Service that they get blueprints and specifications on every new house being built in their territory. This is valuable in many ways. Frequently proposed conditions regarding gas usage are foreseen which later will prove unsatisfactory unless corrected. Such things as installing a non-automatic uninsulated gas water heater in a high grade house, specifying a 20 gallon heater where a much larger one is needed, locating a gas incinerator far distant from the chimney, are samples of the kinds of the items that have been noticed and corrected in advance.

In as many cases as possible after gas is installed and in operation, the New Building representative makes a good-will call on the owner. Any grievance or need of further service thus can be handled with dispatch.

6. Aids to Engineering in Planning

Because of their wide acquaintanceship among builders and their general knowledge concerning the approximate location and expected density of new home construction, the New Building Service representatives are frequently asked by management for opinions regarding future growth. Aiding management in forecasting the amount, location and class of new home construction is an integral part of the activities of the aggressive New Building Service. By having accurate predictions of growth based on

sound information, engineers can determine in advance what route the main should follow to most adequately serve a community and then install a main of proper size to carry the ultimate load. This knowledge of expected future growth is of particular importance because, for example, it precludes the possibility of installing a two inch main where a four inch main will be needed within a year, or possibly a six inch main within three or four years.

The foregoing summary of the work of the New Building Service division indicates to some extent the contributions to operating and sales that evolve from its activities. The exchange of information with the operating and service departments invariably effects economies and leads to better public relations.

Advantages to the sales department from the organization of a New Building Service are obvious. No figures are quoted herein on the increased dollar volume sales of gas equipment brought about by the efforts of the New Building Service because they may be misleading. Other factors, such as: public acceptance, rate inducements, quality of service, advertising, etc., all enter into the resultant sales. Suffice it to say those companies who now follow this method of improving service to new customers are satisfied that the New Building Service plays a definite part, not only in getting gas equipment installed where other kinds of equipment would be purchased if it were not for their efforts but also they get the right kind of gas equipment installed. Gas sales definitely can be stimulated by actively cooperating with home builders. Such cooperation will help the industry maintain its position in the highly competitive market for each of the "Four Big Jobs."

Equally important are the advantages that accrue for the operating, engineering, and

distribution departments. But over and above the economies through avoidance of emergency jobs and the elimination of trouble making cases, stands out this important benefit: We have gained the good will of the new customer in advance of his paying us money. By meeting with him, talking with him, explaining away any questions he may have, we remove the cloak of mystery that sometimes surrounds our business and he comes onto our lines with a good feeling rather than with one of skepticism.

The conclusion of our study of improving service to new customers is that inasmuch as it is our duty and desire to serve the public with a "quality" gas service where and when required, a systematic effort to improve the service to those building new homes by better organization, better supervision, by better coordination of the various departments involved, is highly justified from every angle,—sales, operating, AND CUSTOMER RELATIONS.

Controllers' Problems Discussed in Book

JOHN H. MACDONALD, of the National Broadcasting Company, author of the book "Controllershship: Its Functions and Technique," which was announced on page 328 of the September issue of the A. G. A. MONTHLY, has issued a supplement to this book entitled "One Hundred Questions and Problems on Controllershship," published by The Controllers Institute of America.

The basis of the selection of the 100 problems and cases presented has been their practical application to other similar cases. Some of the problems are stated in "case" form with a complete background while others are in simple question form and center attention on fundamental problems of policy or procedure. In every instance the problems and questions are ones with which some controller actually has been faced.

The new booklet, consisting of 48 pages, may be obtained at a price of \$1.00 per copy from The Controllers Institute of America, 1 East 42nd Street, New York, N. Y.

Two A. G. A. Sections Change Names

BY vote of its membership, the American Gas Association has adopted an amendment to its Constitution changing the names of the Commercial and Industrial Gas Sections. Hereafter the former will be called the Residential Section and the latter has been named the Industrial and Commercial Gas Section.

These changes were made so that the names would conform more accurately to the activities of these two sections. There has been no change in the scope of either section's activities.

CHRISTMAS SEALS



Help to Protect Your Home from Tuberculosis



Residential SECTION

R. J. RUTHERFORD, Chairman
E. J. BOYER, Vice-Chairman
J. W. WEST, Jr., Secretary

Automatic Water Heating Sales and the Low Income Market

By T. W. HALLORAN

New York Power & Light Corp.,
Albany, N. Y.



T. W. Halloran

MORE than 12 years ago our company became interested in the use of high efficiency slow recovery gas water heaters. We believed that there were many people who did not feel they could afford to use the quick recovery, lower efficiency types of heaters. In 1934, when the conversion type of slow recovery heaters came on the market, we investigated and tested several makes and installed 100 for customer operation. After several months' operation, we found that the average use on these heaters was about 2,000 cu.ft. per month, and that the mechanical service difficulties were comparatively few and easy to handle.

Rental Sales Campaign

Being satisfied with our preliminary investigations, we started a rental sales campaign on slow recovery conversion heaters in 1935. This campaign has been continued to date without interruption. Our gross installations over the period from March 1935 to September 1, 1940 total 17,257. The total reverts on this trial rental plan of conversion heaters have been 3,219, leaving us with 14,038 new conversion water heating customers. We estimate that at least 50% of the removals on the program have been for unavoidable causes, such as death, customers moving to new locations, sale of property, etc.

Our company has 118,122 domestic gas customers and serves a territory with a population of approximately 500,000. The territory is 90 miles in one direction and 60 miles in the other serving about 25 communities ranging in population from 150,000 down to the smallest village. The company distributes 540 B.t.u. manufactured gas. The following rate applies to a very large part of the territory:

	Gross	Net
First 615 cu.ft. or less per mo.	\$.85	\$.75
Next 2,178 cu.ft. per 1,000 cu.ft.	1.23	1.16

Next 2,235 cu.ft.	1.08	1.01
	per 1,000 cu.ft.	
Next 3,352 cu.ft.	.85	.78
	per 1,000 cu.ft.	
Over 8,380 cu.ft.	.525	.51
	per 1,000 cu.ft.	

The same rate form with variations in block prices applies over the remainder of the territory.

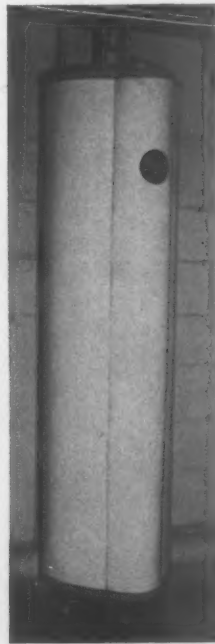
The circulating type conversion heater equipment consists of a complete installation with tank insulation and pressure temperature relief. The strap-on type is a heater and jacket built as one unit. This combination has been sold on a rental basis

of \$1 a month for 42 months with customer satisfaction guaranteed or the burner removed. 30 and 40 gallon assemblies only are included in the program. The rated input of available conversion heaters is from 6 to 12 cu.ft. of manufactured gas.

Our sales force consists of 27 men paid on a salary-commission basis.

We use two compensation systems: one with a comparatively high salary and low bonus and the other with a lower base salary and high bonus. The bonuses of the two systems are as follows:

High Base Salary:	
Conversion	Factory built
\$1.50	\$3.00
Low Base Salary:	
Conversion	Factory built
\$4.00	\$6.00



Three types of high efficiency, slow recovery gas water heaters in operation in Albany, N. Y. Left to right: (1) The circulating type low input or slow recovery conversion heater. (2) One type of strap-on low input conversion heater. (3) Another type of strap-on low input heater

The two systems have produced about the same results.

All conversion heaters are installed by the dealers who are paid \$12 for each installation. In addition, the dealer is paid a sales bonus of \$3 when he makes the sale.

Factory built storage water heaters and manually operated water heaters are sold through the dealers. The dealer is paid a bonus of \$12 for each factory built automatic water heater installation. During the period of our automatic conversion heater program 5,518 factory built water heaters have been sold by the dealers. Added to the conversion heater sales this makes a total of 22,775 automatic water heaters sold during the period of this program.

Our water heater advertising features the convenience of continuous hot water, the low cost with the new types of water heaters and our close cooperation with the plumbers. We use newspaper advertising, direct mail, bill stuffers and bus card advertising.

Sales Training Important

The training of the salesmen has been an important part of our sales program; in fact, the salesmen's attitude toward the sale of water heating needed to be changed considerably. In place of selling "all the hot water you want" it has been necessary for the salesmen to learn to sell the idea of all the hot water you need if you will use the service intelligently. In other words, the salesmen had to learn to sell the slow recovery heaters only in places where they would supply a satisfactory volume of hot water and to acquaint each user with the approximate results to be expected. The salesmen soon learned that under no circumstances was it advisable for them to oversell.

Customers' service requirements, both mechanical and sales, have been reasonable on the conversion heaters. The cost compares favorably with the factory built heaters.

Many of the difficulties were encountered while learning how and where the slow recovery type of heater could be used to advantage. In some localities where there is a large amount of lime in the water, it was found necessary to abandon the circulating type of heater and to use the strap-on type in which the heat is applied direct to the tank and no coils are used. This type of heater has given exceptional results under all conditions.

As indicated, the conversion heater rental program has enabled us to sell automatic water heaters to a large number of customers whom we had been unable to reach previously, either on account of cost of equipment or operating cost. In our opinion, slow recovery water heaters, both factory built and conversion, are giving as satisfactory results today as the quick recovery water heaters which are available provided they are sold properly. This means that the customer must understand the type of service he is buying.

At the time we started our sales program with slow recovery conversion water heaters, our domestic gas load, exclusive of house heating, was gradually decreasing. Through the sale of water heaters during this program, we believe that this condition has been reversed, as we are now showing a gradually increasing load in this part of our business.

Our experience with the water heater sales program outlined indicates that the essentials to building a healthy water heating load are:

1. Water heaters of the slow recovery high efficiency type for the customers in the low income bracket, as well as fast recovery heaters for the customers who can have all the hot water they want when they want it.
2. Trained and experienced salesmen adequately compensated for their work.
3. A generous, well planned advertising

program making use of all the available forms of advertising.

4. Close cooperation with the plumbers, builders, heating contractors and architects.
5. A well trained service organization to supervise the installation work and take care of the customers' service requirements quickly.

Every one of these points is an old familiar friend, much too old and much too familiar—so much so that we speak of them glibly and often fail to recognize their importance.

As an industry we still hope that public acceptance, or something, will eliminate the planning, the expense and the work of building water heating load. Perhaps some day something will, but today, if we want water heating load, it is still necessary to SELL and we need all the tools.

Letter from a CP Sales Leader

ATLANTA GAS LIGHT COMPANY
ATLANTA, GEORGIA

October 15, 1940.

Mr. George L. Scofield, Chairman,
Domestic Range Committee,
American Gas Association,

Dear Mr. Scofield:

I personally want to thank you for the many, many fine things your Committee did for me and the rest of the seven Regional Winners to make our trip a pleasant one while in Atlantic City as the C/P Ranger Club guest.

I, of course, am greatly appreciative of your fine hospitality and each function that I attended seemed to be just 100%.

When I think of 100%, I cannot help but think of what you and your Committee have done to the gas stove business. You have, in the promotion of the C/P Range, made the gas companies conscious of what the gas industry really has to offer the public. The efforts of your associates have vitalized an industry that all but went to sleep only a few years ago. You have shown in a brilliant way how an industry with some thing real to offer the public can be aroused from its lethargy and placed in a commanding position, and I want you to know that I personally am for progress and, therefore, appreciate your splendid efforts.

Having the honor of being one of the eight Regional Winners to me was no small honor, but whether a winner or loser it gives me great pride to think here are 101 customers that the electric industry can't touch, and by their using and enjoying these ranges they will find out for themselves that we have a fuel that will actually do the four big jobs better.

When I look back next year at my 1940 results, my only hope is that I can say to myself, well, I only scratched the surface.

Let me again say that I have never had a more pleasant holiday than while I was in Atlantic City, and you and your Committee members can count on me to be in there pitching during 1941.

Yours very truly,

(signed) Ranger Burt J. Coulon.

Pamphlet Discusses Gas Appliance Venting

A PAMPHLET on "Gas Appliance Venting" has recently been published by the Payne Furnace and Supply Co., Inc. of Beverly Hills, California. It explains the need for proper and adequate venting, discusses various types of vents and materials used, gives specific information on sizing and designing of vents and draft hoods and venting fittings of various types. Copies may be had by addressing the publisher.

Water Heater Sound Film Offered

THE sound slide film "More for the Money" sponsored by the Water Heating Committee and produced by Wilding Picture Productions, Inc. for gas water heater manufacturers, is now available.

This film has been produced in the belief that correct and modern installations will materially reduce the cost of automatic gas water heater service, thereby creating greater customer satisfaction and proving the merit of automatic gas water heater service against all fields of competition.

"More for the Money" illustrates modern installation methods, including proper allocation of the gas water heater itself with relation to fixtures or outlets,—short cuts in piping through the use of tubing,—minimum runs,—manifolds,—hot water traps,—proper venting, etc.

The narrator of the film is Marvin Mueller, who in the radio world is known as the announcer for the "Quiz Kids" program

and also for the "First Nighter" radio program.

Copies of the film are available from the Gas Water Heater Division, Sales Promotion Committee, Association of Gas Appliance and Equipment Manufacturers, 60 East 42nd St., New York, N. Y. at \$5.00 per copy.

New Advertising Director for CP Gas Ranges



James R. Abrams

APPOINTMENT of James R. Abrams as advertising director of the Domestic Gas Range Division of the Association of Gas Appliance and Equipment Manufacturers has been announced by Lloyd C. Ginn, chairman of the Association's CP Sales Promotion Committee.

Mr. Abrams, who since 1933 was associated with Congoleum-Nairn, Inc., will assist in the promotion of CP Gas Ranges. He will serve under R. S. Agee, sales promotion manager of the Range Division, with headquarters in New York City.

Mr. Abrams has had wide experience in newspaper, advertising agency and sales promotion work. He has edited trade publications and written many articles on merchandising. During his association with Congoleum-Nairn, he addressed many department store executives and sales groups throughout the country.

McCall's To Make Home Service Awards

THE Executive Board of the American Gas Association has approved awards to be made by *McCall's* Magazine to the three home service directors or the directing heads of the home service departments of gas utility companies in the United States and Canada which have made the most outstanding contribution to the advancement of better living in the home through the promotion of domestic gas appliances and equipment.

The awards consist of three prizes to be announced annually at the Association's Convention. The initial presentation will be made at the October, 1941, Convention. Entries must be filed by August 1, 1941.

The first prize will consist of a plaque and a check for \$100. The plaque will remain in the possession of the winning department until the next year, and a copy of it will become the permanent possession of the winning department. The second prize will consist of a framed illuminated parchment and a check for \$50, while the third prize will consist of a parchment and a check for \$25.

Entrants are to submit papers of 2,000 words or less covering progress made by their departments. Five members of the gas industry, none of them officers of the Association, will make up the Jury of Awards and the President of the Association will make the appointments. Full details on the Awards will be conveyed in the near future to all gas companies in the United States and Canada.

CP Gas Ranges Lead All-American Hit Parade



With the Rochester Gas and Electric Corporation doing an outstanding job of merchandising CP gas ranges, it isn't surprising to find their windows full of eye-filling displays. More to the point, however, is the All-American theme of these star-spangled exhibits with their popular red, white and blue colors making a perfect setting for the most modern of gas appliances—the Certified Performance Range. It's a popular theme and draws crowds of admirers to see these displays.



Industrial & Commercial Gas SECTION

H. CARL WOLF, Chairman
GEORGE F. B. OWENS, Vice-Chairman
E. D. MILENER, Secretary

National Metal Show's 40,000 Visitors View Improved Industrial Gas Equipment

More than Ever INDUSTRY NEEDS SPEED in Production
and SPEED MEANS GAS Heat



(forming the largest single exhibit at the Metal Show), massive glue pylons, connected by buff overhead beams, encircled the joint rectangular area. Large lettering on these beams proclaimed important merits of gas heat with slogans such as, "On the Button Control," "Better Shop Conditions," "Higher Quality," and "Better Heat Treatment." In addition, the extra-height back-wall of the lounge space at the end of the main entrance aisle sported the slogan of the Combined Exhibit: "Now More Than Ever INDUSTRY NEEDS SPEED in Production—and SPEED MEANS GAS HEAT," under which, in turn, spread a 12-foot chart showing the annual growth of the industrial gas load as over and against the annual growth of business activity.

Industrial Gas Gains 50.4%

Emphasis was placed upon the fact that the industrial usage of gas for the first six months of 1940 was 50.4% above 1929 whereas general business activity for this same period was only 5.8% above the 1929 normal. A special point on the chart marked by a gas flame indicated that in the year 1939 no less than 1,060,379,800 cu.ft. of gas were sold to American industry. This central lounge acted as headquarters for the A. G. A. staff, and as a

Under the slogan of the A. G. A. Combined Exhibit and in front of the chart which proves the point, stand cooperating manufacturers whose equipment was shown: (left to right) L. J. Strohmeier, Eclipse Fuel Engineering Co.; R. C. Jordon, The Selas Co.; P. C. Osterman, American Gas Furnace Co.; Barney Olson, National Machine Works; H. W. Partlow, Jr., The Partlow Corp.; C. A. Hones, Charles A. Hones, Inc.; E. C. Lundt, Fieser-Lundt, Inc.; Eugene D. Milener, American Gas Association; E. H. Perkins, Burdett Mfg. Co.; W. M. Hepburn, Surface Combustion Corp.; R. A. Hastings, Continental Industrial Engineers, Inc.; Ralph Brooks, North American Mfg. Co.; T. E. Schroeder, The Gas Machinery Co.; representative of Sellers Engineering Co.; Ed. Donnellan, American Society for Metals; and F. H. Faber, Despatch Oven Company

THE broadest single effort of the gas industry to approach its customers through the medium of operating equipment displays at national expositions, is, without doubt, our participation each year in the National Metal Congress and Exposition through the medium of a gigantic A. G. A. Combined Industrial Gas Exhibit. This year the event was doubly important because the metal and metal working industries constitute one of the most significant factors in our National Defense Program—and have long been considered to be the largest national industrial customer of the gas industry.

Sponsored by the Industrial Gas Section of the American Gas Association working in cooperation with 20 nearby gas utility companies and 15 manufacturers of gas-using equipment for the metal industries, the A. G. A. Combined Industrial Gas Exhibit this year covered over 6,500 sq.ft. of floor space in Cleveland's Public Auditorium during Metal Show week, October 21 to 25 inclusive. It included the best in gas-burning equipment for almost every conceivable type of heating job any metal industry plant might encounter.

To tie the 15 cooperating manufacturers' displays together into a unified whole



A complete trio—a customer, a gas man, and a manufacturer (left to right): G. K. Crosby, International Nickel Co.; Earl D. Landfear, New York Power & Light Corp.; W. A. Darrab, Continental Industrial Engineers, Inc.

convenient conference space for the many industrial gas engineers from utility companies who attended the show with customers or prospects.

In all, some 250 pieces of industrial gas equipment were shown in the Combined Exhibit to over 40,000 metal folk who registered to inspect the exposition. Much of the gas equipment was in operation, or otherwise animated by motion, color or explanatory slogan—to the extent that a new high in dramatic value was attained for cooperative gas industry exhibits.

In the neighborhood of 100 industrial gas men manned the space at all times, 84 of these representing the 15 cooperating producers of equipment, and the remainder comprised of American Gas Association staff members and industrial gas men from utility companies who volunteered their services. The East Ohio Gas Company, particularly, kept several men on the floor continuously during exposition hours.

In orders, in sales leads, in stimulated customer interest, and in advertising value, the 1940 A. G. A. Combined Industrial Gas Exhibit at the National Metal Congress and Exposition topped all previous records. Appended hereto is a summary of the new and noteworthy units featured by each of the 15 exhibiting makers of gas-using equipment for the metal industries—and a study of these paragraphs should amply demonstrate how the A. G. A. Combined Industrial Gas Exhibit this year helped in no

small measure to sell industrial gas to another of America's No. 1 industries.

Those gas companies who contributed to make the Combined Exhibit possible were: Battle Creek Gas Co., Binghamton Gas Works, Consumers Power Co., The Dayton Power & Light Co., The East Ohio Gas Co., The Empire Gas & Fuel Co., Ltd., Equitable Gas Co., Hope Natural Gas Co., Johnstown Fuel Supply Co., The Manufacturers Light & Heat Co., Michigan Consolidated Gas Co., Monongahela West Penn Public Service Co., New York State Electric & Gas Corp., Northern Indiana Power Co., Northern Indiana Public Service Co., The Ohio Fuel Gas Co., The Peoples Natural Gas Co., Republic Light Heat & Power Co., The River Gas Co., and United Fuel Gas Co.

The 15 exhibiting manufacturers of equipment were: American Gas Furnace Co., Burdett Manufacturing Co., Continental Industrial Engineers, Inc., Despatch Oven Co., Eclipse Fuel Engineering Co., Fieser-Lundt, Inc., The Gas Machinery Co., Charles A. Hones, Inc., The C. M. Kemp Mfg. Co., National Machine Works, North American Manufacturing Co., The Partlow Corp., The Selas Co., Sellers Engineering Co., and The Surface Combustion Corp.

The A. G. A. Committee in charge of the effort was chaired by Karl Emmerling, The East Ohio Gas Co., and was composed of W. R. Teller, A. G. A., Cleveland, and Eugene D. Milener, secretary.

Noteworthy Equipment Shown in A. G. A. Combined Exhibit at Metal Exposition

American Gas Furnace Co., Elizabeth, N. J.

A NEW "bell oven" furnace for clean hardening, carburizing, and nitriding was operated continuously during the show at 1400° F. to illustrate AGF's conception

of "the ideal way to apply protective atmospheres in batch heat treating." In short, an alloy bell is linked to the door mechanism so that as the door of the furnace is opened the bell rises from its sand seal on the hearth and permits the operator to charge or discharge freely; while, when the door closes, the bell reseats itself to provide full-muffle protection around the work without the constructional and other drawbacks of conventional full-muffle designs.

The atmosphere inlet to the top of the bell, of course, permits the use of any desired atmosphere at any desired rate of supply. It is interesting to note, also, that a special flue-cover-plate is linked to the door-opening mechanism, so that when the door is opened the furnace flue is closed and it is impossible for air to circulate into the working chamber.

Also operating in the American Gas Furnace booth was a shaker-hearth full-muffle clean-annealing furnace, capable of handling from 200 to 300 pounds of work per hour in bulk and discharging it into the quench without open air contact. Full lines of torches, bench burners, tiny lead harden-

General views of A. G. A. Combined Industrial Gas Exhibit at the National Metal Exposition—a record-breaker for attendance, dramatics, and sales-power



Gas men confer at one of the operating burner tables (left to right): F. M. Reiter, The Dayton Power & Light Co.; A. M. Thurston, The East Ohio Gas Co., Cleveland; Mr. Moran, Radiant Combustion, Inc., Canton, Ohio



ing pots and bench forges were also shown—many of these latter units being ingeniously equipped with alternate refractory top blocks for easy conversion of the same bench unit from forging work to oven, laboratory, and open flame heating assignments.

Without doubt, the most dramatic single feature of the A. G. A. Combined Industrial Gas Exhibit was the continuous glass blowing show provided by the American Gas Furnace Company to demonstrate its bench-burner equipment. Two artists, fresh from the World's Fair glass blowing concession, fashioned from colored glass amazing knick-knacks, novelties and tableware for the large crowd they continuously attracted to the Combined Gas Exhibit.

Burdett Manufacturing Co., Chicago, Ill.

To prove the durability of its infra-red-ray-producing burners, attendants at the Burdett Manufacturing Company's booth poured cold water directly onto a bank of gas radiant burners operating at around 2000° F.—and at the end of the week, each burner was perking along as efficiently and merrily as on opening day.

Featured advance of the year in the Burdett line was a new flash tube ignition system, which permits the sequential lighting of as many as fifty burner heads from a single pilot flame at one point—irrespective of the size of the burner heads. The operation of these flash tubes is similar to that of the flash tubes popularly used for the automatic ignition of top burners on domestic gas ranges, except that gas is introduced into each flash tube at the midpoint between the two burners it connects. Burners in sizes from 12,000 B.t.u. per hour to 244,000 B.t.u. per hour were shown—each capable of turndowns up to 60%.

Continental Industrial Engineers, Inc., Chicago, Ill.

Here finished products were used to demonstrate difficult gas heating jobs achieved through the use of equipment designed and built by the subject company. Gravity brass castings of amazing precision (virtually equal to that of die casting), produced by the new Capaco casting process in feather-weight molds of powdered asbestos and other minerals, vouched for the uniform top-and-bottom heating achieved in a Continental mold drying oven.

In this application, fragile molds enter the oven containing up to 75% moisture, and must be totally dry without any distortion at the end of the process. Powdered coal, dried onions, and desiccated fruit peelings, gelatins, etc., were shown to prove the effectiveness of the new Link Belt rotary louver dryer, heated with gas-fired recirculated hot air. Continental's air heaters are refractory-lined and built with the engineering of high temperature furnaces, so that air temperatures up to 1500° F. can be attained in long-life units.

Coils of bright-annealed copper, brass, nickel silver, stainless steel, and other alloys proved the success of Continental's

"top hat" bell-type furnace, introduced last year and unique in the respect that it heats from the core of the charge out as well as from the surface of the bell in.

To demonstrate the simplicity of continuous bright annealing in open flames, a laboratory set-up fashioned of Bunsen burners and glassware continuously produced bright annealed copper wire. Enlightened cadmium, lead, and tin melting practices were also illustrated with finished dipped products.

Despatch Oven Co., Minneapolis, Minn.

News in the Despatch Oven Co. space concerned direct-fired externally mounted air heaters, recirculating hot air through ovens intended expressly for the aging and solution-heat-treatment of Dowmetal and No. 195 aluminum alloy. The furnace on display was built for the Modern Pattern Co. of Minneapolis, and is capable of holding 800 pounds of alloy charge for heat treatment at anywhere from 700° to 1250° F. for periods up to 12 or 18 hours. It is characterized by a higher rate of air flow through the working space (the equivalent of a 20-mile-an-hour gale) as well as an increased static pressure (4 to 7 inches of equivalent water column) within the working space. Novel is the provision of damper control on each of the scores of air inlet and outlet ports on either side of the work chamber—so that air distributions may be adjusted as desired on location.

Improved tool and die air-draw furnaces were shown also—these capable of greater speeds because of generally accelerated fan rates. The one on display was arranged for tray charging through a front door rather than by the usual production basket. Despatch Oven also hints that special recirculated air furnaces are being built, wherein will be applied the radiant tube principle of preventing the combustion products from coming in contact with the work (touchy silicon-bearing aluminum alloys in this case) without appreciable losses in efficiency. These units will differ from previously available types of indirect air heaters principally through their greater capacity.

Eclipse Fuel Engineering Co., Rockford, Ill.

Having redesigned its lines of basket-type air-drawn furnaces to permit of higher heat inputs per pound of work and consequent greater rates of temperature recovery, Eclipse featured air-drawn equipment in its booth. A unit, capable of burning 300 cu.ft. of gas per hour and operating at any temperature from 250 to 1250° F., was maintained at heat throughout the week, with a continuously recording pyrometer to demonstrate the accuracy of temperature control and distribution attained. In order to offer a low heat content of furnace walls, and, hence, speedier response to temperature adjustments and load variation, this company uses no brickwork in the shells of its air-draw furnaces.

Other items displayed included: the

McKee ACS tunnel burner with blast pilot, whose exceptionally wide range of capacity and turndown makes it particularly suitable for large boiler installations; as well as the ultra-simple "diluter" or carburetor, introduced last year and being offered this year for the first time with an external manual adjustment for the air-gas ratio desired.

Fieser-Lundt, Inc., New York, N. Y.

The operating burner table displaying this producer's wares again featured both high and low pressure "Staylite" burner sets, as well as ring burners, screen tip burners, gas compressors, and the remarkable low-pressure soldering furnace which maintains reducing atmosphere conditions continuously about the heated coppers and prevents their oxidation even under the most trying conditions.

Much attention was attracted by an 8' ribbon burner with manual flame-distributor adjustment, such as popularly used in band ovens where extra-precise regulation of the heat inputs at side or center is desired. The visitor could make the adjustment himself, and see the flame vary in height at one end or the other.

Shown here for the first time was a screen tip burner with flame retention ring—designed to combine the low turndown virtues of the long-familiar screen tips with the high turnup virtues of flame-retention nozzles.

The Gas Machinery Co., Cleveland, Ohio

A water seal and siphon vent particularly characterized the 2½' rotary forge unit displayed by The Gas Machinery Co.—the positive protection provided by the water seal being made possible only by the venting arrangement which effectively exhausts all water vapor from over the seal before it can get into the work zone. To achieve low flame temperatures and a high degree of flame luminosity (both essential to the prevention of "burning" steel forgings) one tangentially fired nozzle mixing burner of 800 cu.ft. per hr. capacity was used. Three hundred pounds of steel per hour can be handled on the table which, depending upon the mass of the work, can rotate at any rate from 3 to 12 rpm. Photo-electric Rayotube control maintained 2200° F. continuously in the work chamber, which temperature was continuously recorded on a complete instrument panel. A compressed-air curtain across the door opening provides insurance against burning of the operator's hands by stray tails of the lazy looping flame most suitable for best forge heating.

Charles A. Hones, Inc., Baldwin, N. Y.

Three pot furnaces (100 to 300 cu.ft. per hr. capacity), one semi-muffle furnace operated at 2000° F. (90 cu.ft. per hr.), and one full-muffle furnace operated at 2500° F. (180 cu.ft. per hr.)—all fired by atmospheric burners requiring neither air blowers nor gas compressing equipment—were the major elements in the Hones booth. Their special adaptation is in shops where gas-air mixing apparatus and power

requirements must be kept to a minimum. A simple gas connection at city pressure is all that is required for their operation.

The complete Hones line of ring and torch type burners was also shown in operation. It is evident that, each year, this company is successfully producing larger and larger units fired by the simplest of atmospheric equipment.

The C. M. Kemp Mfg. Co., Baltimore, Md.

For the very first time, Kemp showed silica gel adsorptive dryers for industrial dehumidification. The one set up in the A. G. A. Combined Exhibit was capable of producing 1000 cu.ft. of air per hour, desiccated to a dew point of -40° F. from 100% moisture saturation at 90° . It consumes 300 cu.ft. per hr. of gas and can operate for 8 hours (the length of the usual labor shift) between reversals. Kemp is equipped to build such units for air deliveries up to 25,000 cu.ft. per hour, and for air or gas pressures up to 2500 pounds per square inch.

Also exhibited was the 4 MW Atmos-gas machine for producing cracked, treated, washed and cooled protective atmospheres for particular heat treating and annealing requirements. Again, the recirculating type of radiant tube (available in diameters from 1" to 12", in any lengths and configurations desired, and for operation at temperatures from 275° F. to 1850° F.) was also shown in display section. Interesting new can preheat burners, brazing and soldering torches, line burners, nozzles, and other precision combustion equipment was also operated. Many of these were notable by virtue of the fact that different banks of ports in the same burner were separately fed and controlled, so that the shape and nature of the aggregate flame could be flexibly varied to suit the requirements of special jobs.

National Machine Works, Chicago, Ill.

Featured here was a new proportional mixer, so designed as to give higher mixture pressures than ever before possible with a given blower air pressure. The stunt is accomplished by eliminating the extra orifice in the gas line usually provided for regulating the air-gas ratio, and doing its job with an ingenious adjustment of the annular opening through which gas is inspirated into the mixing venturi. To demonstrate the point, one of the new mixers was hooked up to a ribbon burner, and a gage panel connected to show both blower-air and mixture pressures. Further, a large heat treating furnace operating at 1700° F. was fired with the new system and a continuous CO_2 recorder operated to show less than 2% variation in the flue gas analysis under various conditions of shutdown. This company's hyperbola-plug nozzle burners were also featured in the booth, along with extra-life torch tips and flame-retention line burners.

A new recirculating type of immersion tube heater for pickling tanks was also shown—the application being possible

Because the display described in this article included more gas equipment for the metal industries than has ever been shown at one time—and because all this equipment is here discussed in detail insofar as it is new or improved—the A. G. A. MONTHLY feels that many industrial gas salesmen among its readers might like to call this feature to the attention of all customers or prospects in the metal and metal products fields. Therefore, arrangements have been made for you to order reprints at cost by addressing the Director of Industrial Gas Publicity, American Gas Association, 420 Lexington Avenue, New York City.

through the use of tubes of a new graphite material which is resistant to acid attack even at the temperatures developed in pickling.

North American Manufacturing Co., Cleveland, Ohio

A new zero governor featured by this company will hold outlet pressures constant to within 1/10 of an inch equivalent water column over an entire throughput range of zero to 250 cfm., even though the inlet pressure may vary from 6 to 10 ounces. A simple laboratory setup of indicating flow meter, governor and outlet gage in series, permitted the visitor to prove the point for himself. Flame retention nozzles with alloy tips, tunnel burners, and drilled-port ribbon burners were operated in spectacular fashion over a mirror-finished steel plate. A 2000 cfm. turboblower was rotated on a display pedestal; and adjustable-port proportional mixing valves were shown in section.

The Partlow Corp., New Hartford, N. Y.

So successful has been the new Partlow ignition, safety and control system introduced last year that it was again shown, connected to an air heater and fitted for push-button operation at the hands of visiting metal men. Once the button is pressed, the following sequence of operations is automatic: the blower is started, the unit is purged with blower air for a period regulated by a time clock, the spark interrupter is set in action and (at the same time) the pilot valve is opened for ignition of the pilot by the spark (this failing, everything is shut down after the ninth spark), the pilot flame actuates a flame conductivity unit operating the main gas valve, main burner ignition takes place, and a temperature-limit control in the stack provides for shut-off should the stack temperature climb above a predetermined point.

The year's new Partlow unit consisted of a mercury bulb temperature control with two manually set dials regulating temperature limits between which the controlled temperature oscillates. This is the first

time that such a differential control can be externally set for temperature variations over ranges as wide as 150° F. It will operate down to the freezing point of mercury, so that it can be used in refrigeration as well as in heating practice.

The Selas Co., Philadelphia, Pa.

The operating burner tables fronting the Selas space boasted many interesting adaptations of super-precise combustion from refractory heads. Among them was a gas-fired production soldering iron offering safety insurance, low cost, protection against overheating, and fast heat-recovery rates in continuous service operations.

A flame hardening bank for the surface hardening of crankshaft cams won much interest. Another flame hardening burner, no larger than 3" in any dimension, constituted a perfect little furnace within itself for the continuous hardening of skate blades as well as shell body annealing. Ceramic ribbon burners which could be cut off to any length by a manual pull-rod were shown, along with tiny crucible and laboratory furnaces selling for as little as 1/3 of the cost of equivalent electric bench furnaces.

To demonstrate the radiant heat output of Selas Duradant burners, one was operated behind a Pyrex glass shield to block off all but the radiant heat—and this output caused a radiometer to spin furiously unless an opaque card was interposed. It was stated that 60% of this burner's output was in radiant energy in the infra-red zone. A showcase of products attested to unusual and normally difficult heating jobs achieved with the burners displayed.

By way of showing the conservation of space and furnace construction which can be achieved with refractory burners, a continuous vertical annealing machine for the handling of 2" to 14" copper strip was operated. The remarkably small combustion space of this unit was attained by the use of many refractory cup-type burners disposed about the traveling strip in appropriate locations, and notable for the fact that each is virtually a complete furnace in itself and requires no further combustion space except for the proper elimination and control of combustion products.

Sellers Engineering Co., Chicago, Ill.

Horizontal immersion-tube water heaters and vertical fire-tube boilers—for heavy industrial use—were shown by this producer. He guarantees 80% thermal efficiency for his water heating apparatus, this because all fire tubes are completely immersed in the liquid to be heated, their outlets are at or near the same level as their inlets to eliminate cold air drafts, and flue products are discharged at remarkably low temperatures. The unit shown had a 99-gal. tank, and consumed 64,000 B.t.u. per hr. of gas. The vertical fire-tube boiler was of the high pressure type, of 4 hp. capacity, and had throttling control to minimize gas consumptions during standby periods in which steam is not used.

(Continued on page 456)

Showing American Restaurateurs What Gas Can Do in Counter Cooking

THIS is "show" season—"trade show" season—and already your A. G. A. Industrial Gas Section has participated in the three biggest expositions it could find sponsored by major non-residential-gas-using industries. At one of these, the National Restaurant Exposition, Chicago, October 7-11, the Association devoted its booth for the first time to demonstration of the beauty, flexibility and modernity of gas counter cooking appliances (griddles, toasters, broilers, hot plates, and counter ranges). The accompanying illustration shows how effectively the job was done.

The Peoples Gas Light and Coke Company of Chicago supplemented the counter cooking story with the story of commercial gas refrigeration—in a booth of its own. Further, no less than 25 manufacturers of gas-fueled volume cooking apparatus also displayed their wares in separate spaces. That made it a "real gas show"—with three gas booths to every one showing competitively fueled equipment.

Tom Gallagher, manager, Commercial Sales Department, The Peoples Gas Light and Coke Company, and chairman of the Industrial Gas Section Committee in charge of the A. G. A. participation, put the important facts in this telegram:

"1940 Restaurant Show topped all records with 13,989 attendance; 10 percent over 1939. Real buying interest; more business actually consummated on floor than ever

before. A. G. A. booth generally acclaimed most outstanding and colorful of exposition. Commercial refrigeration in Peoples Gas Light and Coke booth dramatized with water fountain and reach-in box actually cooled by unit displayed. Gas utility and manufacturer representatives, including Finney of Washington, Healy of Springfield,

Mass., Druse and Dubberke of Milwaukee, Twigg and Williams of Indianapolis, and Rudolph and Brogan of New York, were high in praise of gas industry's showing."

In essence, that's what we did with our exhibit before the restaurant men of the country. On pages 434 and 435 is the story of our 1940 presentations to the hotel men of the nation; and on pages 444 to 447 is reported the job we did on the huge, booming American metal and metal products manufacturing industries.

Editors' Stunt Spices Metal Show Breakfast

BY 8:30 A.M. (and that's mighty early) the Lattice Room of the Hotel Statler in Cleveland on Tuesday, October 22, bulged with an overflow crowd of industrial gas men, editors of leading national metal industry publications and representatives of the American Society for Metals, all having an informal breakfast together—having breakfast together because gas means so much to the metals industry and metal products manufacturing means so much to the gas industry. The occasion was the simultaneous attendance of the breakfasters at the National Metal Congress and Exposition, October 21 to 25. The editors of all metal industry magazines (14 of them) were the special guests of the day.

As his first official duty as vice-chairman of the Industrial Gas Section, George F. B. Owens, assistant vice-president, The Brook-

lyn Union Gas Company, presided over the brief meeting. Greetings and a welcome to Cleveland were tendered by C. E. Gallagher, president, The East Ohio Gas Company. Guest speaker of the day, and vice-president of the American Society for Metals, Prof. Bradley Stoughton of Lehigh University, expressed to the gas industry the appreciation of the Metal Society for the A. G. A.'s 15-year participation in the National Metal Exposition, and gave recognition to the opportunity of the gas industry to cooperate with the metal industries in speeding up for national defense.

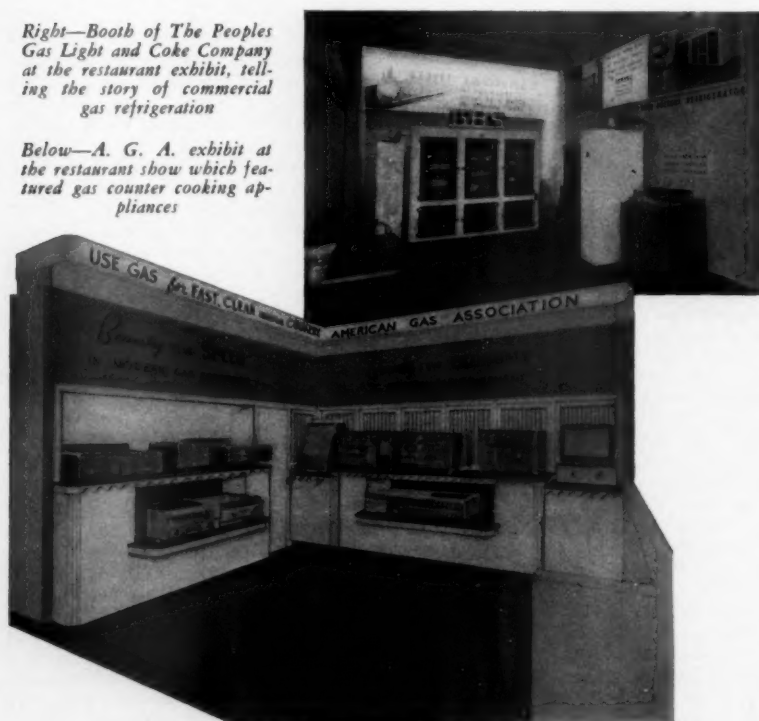
On behalf of the manufacturers of gas-using equipment, W. E. Steinwedell, president, The Gas Machinery Co., thanked the Association for the opportunity of participating in the Combined Exhibit, reminisced regarding "the long way we have gone" since the first Industrial Gas Breakfast at a National Metal Congress four years ago, and concluded with humorous comment effecting a graceful transition from the serious remarks to date to the semi-serious Metal Editor's Surprise Party and Copy Crap Game.

Yes, the 14 editors, representing all 12 leading national metal publications, found themselves on their knees rolling dice for seven exclusive articles-in-embryo from the files of the A. G. A. Industrial Gas Publicity Department concerning newsworthy developments in the utilization of gas by various branches of the metal industry. Because the stories were worthwhile, and the illustration of each complete, the competition was keen even though the gambling was blind—no editor knowing which file of exclusive material was at stake on each roll. Proof of the success of the novel "handout party" lies in the fact that all stories were accepted for publication after the fun was over. Giant dice for the breaking of ties, display score boards, friendly kidding, and dramatic staging all made for good sport.

The following publications were represented in the game: *The Iron Age*, *Metals & Alloys*, *Industrial Gas*, *Steel*, *Foundry*, *American Machinist*, *Metal Progress*, *Industrial Heating*, *Heat Treating & Forging*, *Products Finishing*, *Daily Metal Trade*, *Wire & Wire Products*. The secretary of the Industrial Gas Section introduced the editors. The director of Industrial Gas Publicity acted as "croupier."

Right—Booth of The Peoples Gas Light and Coke Company at the restaurant exhibit, telling the story of commercial gas refrigeration

Below—A. G. A. exhibit at the restaurant show which featured gas counter cooking appliances



Going Ahead WITH INDUSTRIAL GAS

You Draft an Appetite every time you draft a soldier. So Uncle Sam will have 2,000,000 more military mouths to feed next year. Apparently, he's going to do most of the cooking with insulated, automatic-heat-controlled, heavy-duty gas ranges. Vulcan reports an order for 1,000 sections already.

War Communique: Allied Gas Forces press deeply into Bed-bug-land. Enemy casualties in millions. Unusual armaments in form of Thermolizer (Perfection Ice Scoring Machine Co., Ft. Worth, Tex.) responsible for advance. New war-machine literally incinerates bed-bugs, B-coli and T. B.-bacilli (axis partners) by dry heat at 262° F. in 1¼ hours, even with foe barricaded behind 2" cotton felt. Range: 6 mattresses or 360 cubic feet of upholstered furniture. Aerial support by Gas Industry Sales Forces essential to placement and effectiveness of new artillery.

"A Complete Sales Job By Mail" is not only possible but profitable, especially to chain store headquarters in distant cities," says Ed Stauffer, South Carolina Power, "and you don't have to have 'agents abroad' to do it!"

Direct-Mail Honors for December: To Brooklyn Union's Industrial Division, for a standard 2-color, letter-front, return-card mailing piece on unit heaters. Why a prize for a standard piece? —(1) a simple, plain, factual letter, (2) the slogan "Overhead GAS Heat . . . Cuts Overhead Costs," and (3) a 2100 mailing list with the right man's name and title in each case.

A Study of 46 Institution Kitchens (30 hospitals, 12 dormitories, 4 lunchrooms) made by the American Dietetic Association shows: 63% use gas ranges; 70% have separate ovens for baking; 60% use fat fryers (primarily on gas); only 13% lacked broilers. So far so good—but 30% had electric ranges.

Read and Learn—then clip and use: "Instruments for Control and Analysis of Controlled Atmospheres," E. E. Slowter and B. W. Gonser, METAL PROGRESS, October, pp. 555-69; "A New Refractory Radiant Tube Enameling Furnace," W. F. Ross, BETTER ENAMELING, August, pp. 13-4; "Combustion Systems, Controls for Gas-Fired Boilers," Henry Cooney, OIL & GAS JOURNAL, August 22, pp. 61-6; "Safe Dishwashing Technics," W. D. Tiedeman, MODERN HOSPITAL, September, pp. 98-9; "Industrial Dehumidification by Solid Adsorption," G. L. Simpson, INDUSTRIAL HEATING, October, 942-6; "What Equipment Would You Buy Today To Build an Efficient Enamel Shop?," CERAMIC INDUSTRY, November, pp. 42-6.

14 Leading Editors Shot Crap (actually) at the 1940 National Metal Exposition for exclusive rights to editorial material collected by your Industrial Gas Publicity Department concerning gas in the service of the metal industries—which goes to show that if your sales talks (personal or printed) are legitimate news and technically constructive the world will go 'way out of its way to listen.

Another New Gas Engine Market is the lusty 2-year-old, the food storage locker business, and its basic refrigeration needs. Arkansas City reports a job on the regular domestic rate.

1500 Leading Dietitians from hospitals, schools and institutions all over the country now know more about heavy-duty gas cooking equipment—because American Stove and Standard Gas Equipment both displayed their wares at the Annual Convention of the American Dietetic Association, Hotel Pennsylvania, New York, October 20-25. On the theory that the dietitian is the person "closest to the actual user possible to reach by exhibition," both firms took the plunge for the first time—and liked it.

Three Cheers for "The Golden Rule"—to help sell. "To render maximum service to the Quantity Cookery field" is the No. 1 long-range objective which the new A. G. A. Food Service Equipment Committee recently set for itself.

INDUSTRIAL AND COMMERCIAL NATIONAL ADVERTISING FOR DECEMBER

The National Advertising Committee of the Industrial Gas Section, J. P. Leinroth, chairman, and F. B. Jones, vice-chairman, announces that full-page advertisements will appear in the trade and business magazines listed below during the month of December. These advertisements are prepared in cooperation with the Committee on National Advertising as a part of the Association's national advertising campaign.

General Manufacturing

BUSINESS WEEK (Dec. 14) "Are all your orders marked, RUSH? Here's how modern GAS equipment can speed up your production."

Metals Industry

THE IRON AGE (Dec. 12) Business Week advertisement entitled: "Bottlenecks?—speed production in your plant with modern GAS equipment," plus tie-in advertisement on Gas applications in Metals Field.
STEEL (Dec. 16)
METALS & ALLOYS
METAL PROGRESS
INDUSTRIAL HEATING

Food Industry

BAKERS HELPER (Dec. 7) The famous Horn & Hardart "Automats," New York, use GAS in their baking commissary!
FOOD INDUSTRIES Close temperature control is vital in meat processing . . . that's why Hunter Packing Company, St. Louis, Missouri, uses GAS.

Ceramic Industry

CERAMIC INDUSTRY

Business Week advertisement entitled: "Bottlenecks?—speed production in your plant with modern GAS equipment," plus tie-in advertisement on Gas applications in Ceramic Field.

Hotel and Restaurant Field

HOTEL MANAGEMENT

The Miles Standish, in Boston, thrives on food reputation built with modern Gas equipment.

AMERICAN RESTAURANT

"We estimate our operating savings at \$710 a year—with GAS"—Harry Howell, Jacksonville, Florida.

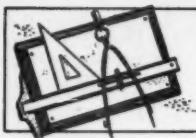
CHAIN STORE AGE
(Fountain and Restaurant Section)

"Gas helps save on costs and improves foods!"—New Orleans cooking installation.

Processing Industry

**CHEMICAL & METAL-
LURGICAL ENGINEERING**

Business Week advertisement entitled: "Bottlenecks?—speed production in your plant with modern GAS equipment," plus tie-in advertisement on Gas installations in Processing Field.



Technical SECTION

D. P. HARTSON, *Chairman*
HAROLD L. GAIDRY, *Vice-Chairman*
A. GORDON KING, *Secretary*

Spadework for Constructive Technical Program Completed at Organization Meetings

By A. GORDON KING
Secretary, Technical Section

H. L. Gaidry, (left), New Orleans, vice-chairman, Technical Section, and H. D. Lehman, Philadelphia, vice-chairman, Gas Conditioning Committee

R. J. Sheridan, Brooklyn, vice-chairman, Chemical Committee, poses with the chairman of the committee, E. L. Sweeney, of Everett

quired attendance on a national holiday. He remarked it was significant that each group had solemnly observed Armistice Day at eleven o'clock.

Following is a brief outline of the major committee activities which were reported at the organization meetings:

CHEMICAL COMMITTEE

E. L. Sweeney, Everett, Mass., Chairman

The Chemical Committee will take a prominent part in the 1941 Annual Convention program and will contribute three papers on outstanding chemical developments during the year. Those now under consideration for the convention are as follows:

1. Characteristics and Operating Results of the New Gum Treators of the Boston Consolidated Gas Company.
2. Mechanism of Reactions of Steam with Carbon.
3. Determination or Definition of the Combustion Characteristics of a Fuel Gas.

In addition, this committee has selected six or seven timely subjects for presentation at the 1941 Joint Production and Chemical Conference. The subjects under consideration for this conference encompass a wide field. Assignments are being made to well informed operators, scientists and other specialists.

Of the continuing committees, the subcommittee on the Revision of the Analyses



Dr. Scott Ewing, U. S. Bureau of Standards, says goodbye to Chairman Dorr P. Hartson, Pittsburgh, before going to the Canal Zone on government work



whose early planning would ensure a year of successful work. The chairman said he was grateful for the excellent attendance and regretted that circumstances had re-

FOLLOWING hard on the heels of the last annual convention with its successful sessions and committee meetings held at Atlantic City, the Technical Section got an early start Armistice Day weekend for the new Association year. Numerous well-attended committee meetings and conferences culminated Tuesday afternoon, November 12, at the Hotel Pennsylvania, New York when the respective Chairmen presented the plans of the committees on Production, Distribution, Gas Conditioning, Motor Vehicle and Chemical for the advice and approval of the Managing Committee.

In his opening remarks the chairman of the Section, Dorr P. Hartson, of Pittsburgh, said that he hoped for a continuance of the interest, along with the knowledge and experience, of the members of the Managing and Advisory Committee in the many important activities and studies contemplated by the Section.

Mr. Hartson paid tribute to the spirit of cooperative endeavor, everywhere evident and congratulated the Section on the well-organized and representative committees



The Distribution Committee in action—Left to right, seated: F. M. Goodwin, Newton Centre; K. Fuery, New York; L. W. Tuttle, Oak Park, chairman; C. S. Goldsmith, Brooklyn, vice-chairman; and K. B. Nagler, Chicago. Standing: Dr. Scott Ewing, Washington; H. Horstman, Indianapolis; D. P. Hartson, Pittsburgh; H. M. Blain, New Orleans; C. F. Turner, Cleveland; E. G. Campbell, Chicago; W. J. Murdock, Joliet; C. H. Waring, Kansas City; H. L. Gaidry, New Orleans; and S. P. Cobb, New York.

and Tests chapter of the Gas Chemists' Handbook, under the chairmanship of S. S. Tomkins, is making rapid progress. It is estimated that the Gas Analyses chapter will be available by 1941 for publication. Professor Jerome J. Morgan of Columbia University has been retained as Editor. The subcommittee has been requested to take under consideration revision of the remaining chapters of the Gas Chemists' Handbook for completion during the present fiscal year.

The Luncheon Conference Subcommittee, headed by Dr. C. W. Wilson of Baltimore, has a number of interesting subjects in hand for this feature.

Richard H. Opperman, librarian of The United Gas Improvement Company, will be consulted with regard to bringing up-to-date the index to material of a chemical nature in the Association's Annual Proceedings which was compiled by Mr. Opperman in 1936. It is hoped to add to this material every five years in order to have a continuing bibliography for future reference.

DISTRIBUTION COMMITTEE

L. W. Tuttle, Oak Park, Ill., Chairman

At the meeting of the Distribution Committee held the previous day, it was unani-

the registering delegates, listing a number of general subjects of general interest, with a request that each shall select the subjects in which he is interested for the guidance of the Committee in arranging the open forum discussions for the second and third days.

Subcommittees continued for the coming year are: Cast Iron Pipe Standards, Meters and Metering, Pipe Coatings and Corrosion and Pipe Joints and Pipe Materials. A new subcommittee has been added to the work of the committee this year on the subject of Appliance Servicing.

The chairman advised that during the



Capt. O. A. Axelson, New York, chairman, Committee on Operation of Public Utility Motor Vehicles

had been made; each member on the committee will handle the many considerations coming before the group.

The most important phase of this committee's work, it was pointed out, is the matter of organic sulphur on which the committee reported two years ago. The request for an appropriation for this work had been presented to the Executive Board but had been withheld pending definite plans for its expenditure. Among the activities to be undertaken is a study of the economies that would prevail if organic sulphur were removed from the gas streams, for which study several large companies have volunteered to pool information.

It is the viewpoint of the committee that service to the customer should be entirely satisfactory and toward this end everything should be done to have the gas sulphur free. In this endeavor the committee will require cooperation and coordination. Work is at present being done on the organic sulphur problem in several of the companies,



The Gas Conditioning Committee—Left to right, standing: R. E. Kruger, Rochester, chairman; O. S. Hagerman, New York; W. J. Huff, College Park; Carl H. Cummings, Boston; D. E. Heath, New York; John H. Wolfe, Baltimore; and A. R. Belyea, New York. Seated: H. D. Leberman, Philadelphia; T. L. Robey, Washington; E. J. Murphy, Brooklyn; K. B. Nagler, Chicago; C. F. Turner, Cleveland; and A. R. Powell, Pittsburgh



G. T. Bentley, Providence, chairman, Gas Production Committee. Inset above, R. H. Arndt, Baltimore, Vice-chairman, Gas Production Committee

mously voted to hold the Distribution Conference in Pittsburgh, Pa., April 21, 22 and 23, 1941. In the event of a conflict with other meetings the committee will hold the conference two weeks earlier.

In reference to the Distribution Conference program, Mr. Tuttle advised that probably two afternoons will be arranged for the Luncheon Conferences, or an open forum meeting, with the formal papers being presented in morning sessions and opportunity may be afforded for a trip to the Research Institute of Pittsburgh.

In further explanation of the committee's plans for the Luncheon Conferences, Mr. Tuttle said it is planned to present cards to

morning a meeting was held at Association Headquarters for the purpose of correlating activities of the Residential Section and the Technical Section Appliance Servicing Committees. The Residential committee will deal with topics of managerial and sales interest while the Technical committee will study appliance servicing and proposed changes in design.

GAS CONDITIONING COMMITTEE

R. E. Kruger, Rochester, N. Y., Chairman

Mr. Kruger said he felt honored to be chairman of this important group and was pleased with the personnel who have volunteered to work with him. No subdivisions



Prof. Frank Dotterweich, Texas College of Arts and Industries, and Prof. Jerome J. Morgan, Columbia University, editor of the Gas Analyses Chapter of Gas Chemists' Handbook

and three papers connected with organic sulphur removal will be available.

The committee will present a symposium paper on the matter of filters installed on apparatus of various kinds, such as water heaters, ranges, refrigerators, and also orifices put on for the same purpose for the removal of gums.

Mr. Kruger reported on work done at Rochester for another paper. Tests have been conducted on a series of service line appliances and equipment, water heaters, gas refrigerators, house heating installations and ranges in an endeavor to determine causes of flashbacks, poor combustion and pilot "popping" on customer appliances. Burners were set at various B.t.u. input mixtures at the burner head to ascertain proper adjustments for the purpose of properly instructing, by usual inspection, servicemen in connection with emergency and routine calls.

COMMITTEE ON OPERATION OF PUBLIC UTILITY MOTOR VEHICLES

O. A. Axelson, New York City, Chairman

A new committee in the Technical Section, this group held its organization meeting at the annual Convention in Atlantic City. Mr. Axelson reported that the committee has been initiated to afford a common ground for the discussion of the Operation of Motor Vehicles in the Public Utilities as a suitable agency had not previously been available for the full consideration of the many problems in this field.

The aims of the committee are to afford an opportunity for members interested in public utilities transportation to air their problems, exchange ideas and to act as a clearing house for various developments in this line of endeavor, with the ultimate object of affecting a better economy and operation of these vehicles.

The motor vehicle group plans to hold an annual conference for the consideration of its problems. In addition to this conference, the committee plans to take a part in the annual A. G. A. Convention each year. As its program develops, the committee may hold local meetings of a regional nature in addition to the proposed conference.

Due to his army commitments, Captain Axelson advised that it would soon be necessary for him to turn over the chairmanship of the committee to his vice-chairman, R. H. Clark of the Consolidated Edison Co. of New York, Inc., who will carry on along indicated lines.

GAS PRODUCTION COMMITTEE

L. E. Knowlton, Providence, R. I.,
Chairman

The time and place of the Joint Production and Chemical Committee Conference was discussed at the morning meeting of the Production Committee and it was decided to hold the conference in New York City, May 19, 20 and 21, 1941. It was further recommended that the chairman of the Gas Conditioning Committee meet with the Joint Program Committee for the conference for consideration of program items emanating from the Gas Conditioning Committee.

Mr. Knowlton reported that several papers were under consideration for presentation at the 1941 Conference which would be submitted to the Joint Program Committee for later decision.

With regard to National Defense and Protection of Plants, the Gas Production Committee has organized a subcommittee to crystallize the discussion at the committee meeting for later submission to the Managing Committee and for coordination with the general Committee on National Defense. It was thought that nothing definite at the moment could be decided for presentation at the Joint Production and Chemical Committee Conference on this subject because of the changing character of the immediate considerations at this time.

Ten topical and informative subjects are under consideration for development as presentations of the Committee at the Joint Production and Chemical Committee Conference among which are included: Maintenance of Waterless Holders; this paper will bring up-to-date the experience on this subject on both types of holders and include experience in Canada; Further Developments in Actual Operation of Plants for Liquefaction of Natural Gas and Further Reports of Actual Operation in Mixing Oil with Coal, following Mr. Ramsburg's paper at the last Annual Convention.

OTHER ACTIVITIES

In addition to the committee reports Chairman Hartson brought many items up for discussion and suggestion. As a result several motions were passed and decisions made in connection with the work of the Technical Section for the current year's work. Included were the preparation of by-laws and recommended procedure; American Standards Association projects; completion of the Association Headquarters' Production and Chemical and Distribution Conference papers file; ASTM projects of interest to the Technical Section and particularly to the Chemical Committee with a view to avoiding duplication of effort; early dissemination of information about the Beal Medal Award.

In connection with a reliable method for determination of vapor phase gums, Mr. Modzikowski advised, that the Chemical Committee at its meeting the previous day considered a correlation of method on that subject, and it is intended to publish in the MONTHLY a method which meets the approval of the Chemical Committee and on which Messrs. Kruger and Sweeney will cooperate.

Mr. Hartson advised that in the activities planned for the various committees liaison members had been appointed on each committee to cooperate with the other committees of the Section to report back to their respective committees any duplication of effort or cooperative endeavor which might develop.

Chairman Hartson reported much of the work of the Technical Section this year would deal with National Defense and Plant Protection, and that the committees concerned with distribution and gas production had given a great deal of consideration to this matter. All work by the Section in this respect will be coordinated with the general Committee on National Defense,

under the chairmanship of G. F. Mitchell. It may be possible to have presentations at the conference by representatives from the F.B.I. to talk informally. The work of the Personnel Practices Committee in this and related matters was mentioned and it was felt that any work by the Technical Section should also be coordinated with the work of that committee. Chairman Hartson assured those present that any such work of the Technical Section would be coordinated with all committees considering this general matter of National Defense.

The chairman stated that the secretary of the Section would be requested to continue studies looking toward securing all available information from Europe and the European trade press and other sources that might be helpful. The assistance of the



Caught in the act! Technical Section Secretary King gets a dose of his own medicine from Marshall Hyde of Port Huron, Mich., during the recent A. G. A. convention

Institution of Gas Engineers has been requested in (a) securing information (b) providing a speaker for conferences next year. Mr. Hartson commented that liaison should be simple since Mr. King was also secretary of Mr. Mitchell's general committee of the Association on National Defense.

The meeting closed on a high note of solidarity, full coordination, enthusiasm and team work.

Significant and valuable was the wise counsel and encouragement of the Advisory Committee headed by immediate Past Chairman Goodwin, functioning jointly with the widely representative Managing Committee. The Section has canvassed its field, planned and organized its work and is now under way for 1940-1941.

Directs Scout Movement

N. HENRY GELLERT, president of the Great Lakes Utilities Company, Philadelphia, has been elected a member of the Executive Committee of Region Three of the Boys Scouts of America for a term of three years. Mr. Gellert is a director and a member of the Committee on Association Activities of the American Gas Association.



New Tables for Determining Orifice Sizes for Domestic Gas Appliances

THE gas engineer or service man is frequently called upon to install fixed orifices on appliances which will permit passage of a predetermined gas rate to the burners. Ready means of accurately measuring this rate are generally not available in the field. As a result, it has been necessary to depend upon past experience under similar conditions, or upon visual observation of the flame size and burner operating characteristics while applying trial and error methods to ascertain proper rate adjustment.

Although considerable data in the form of equations, charts and tables are available for selection of proper orifice sizes, difficulty is frequently encountered in their use due to the inadequate scope or inconvenient form of these presentations. Such data generally involve a complicated, or to say the least, tedious calculation, or are of such narrow scope that all of the possible variables are not taken into consideration.

Solution Covers Many Types of Gases

In the course of studies* for the Committee on Domestic Gas Research at the American Gas Association Testing Laboratories, it was considered desirable to develop a readily applicable solution to this ever-present problem in the form of tables that would adequately cover all types of gases generally distributed, and take into account such variables as heating value, specific gravity, and gas pressure at the orifice. Accordingly, such tables have been prepared and are presented herein with the hope that they will be of some value to the gas engineer. They constitute a new method of presentation which, considering the scope covered, is probably more convenient to employ than any heretofore available.

Tables 1 and 2 include data for selecting the proper orifice size for a required rate when the heating value, specific gravity and pressure of the city gas to be used, are known. Approximations of these values, sufficiently accurate for most applications, can easily be obtained. In using these tables a factor which takes the specific gravity and heating value into consideration is first selected from Table 1. This constant is then multiplied by the value of the input rate of the burner in B.t.u. per hour. The proper orifice size may then be selected

By GEORGE J. PACANOVSKY
and
EARL J. WEBER

American Gas Association Testing
Laboratories

from Table 2 by locating this resultant product under the desired pressure.

For example, in using these data to find the orifice size needed to supply the correct volume of gas to a burner rated at 20,000 B.t.u. per hour when a 0.60 specific gravity and 1,100 B.t.u. per cubic foot of natural gas is supplied at 7 inches water column pressure, the following procedure is employed. From Table 1 the factor for heating value and specific gravity is found to be 0.727. Multiplying this by 20,000 (the input rate of the burner) results in the product 14,540 which is found to lie in Table 2 in the 7-inch pressure column between the values for orifices Nos. 49 and 50 D.M.S. The larger of these, which is the No. 49, will then be of sufficient size to permit the desired quantity of gas to flow through it.

Additional discussion on the gas pressure that is to be considered in applying Tables 1 and 2 will be presented at this

point. It is important to note that this pressure is, strictly speaking, the static pressure at or very near the orifice and not in the house piping. A consideration of the factors involved will show that it is impractical, if not even impossible, to take into account in tables the pressure drop that may exist through the house piping, manifolds, thermostat, main control valve, automatic pilot, or other gas control devices in the system. In other words, when determining the orifice size needed for a required rate for a given set of conditions on an appliance the sum of the pressure drops through each of the control units must be subtracted from the line pressure to obtain the value of the actual pressure at the orifice. The pressure drop across a control unit is dependent upon the size and shape of the gas-way through it, as well as type of gas and volume of gas flow.

On domestic central heating appliances having, for example, a main control valve, regulator, thermostat, and automatic pilot this pressure drop may approach as much as 1 inch water column when operating with manufactured gas at normal rate and pressure. Hence emphasis again is placed on the necessity of correcting the line pressure to give due consideration to the drop through the system and of then employing

TABLE 1

Orifice Capacities

Correction for Heating Value and Specific Gravity of Gas
(Basis—800 B.t.u., 0.6 Sp. Gr. Gas)

Heating Value B.t.u. per Cu.Ft.	Specific Gravity—(Air = 1.0)													
	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
400	1.41	1.63	1.83	2.00	2.16	2.31	2.45	2.59	2.70	2.83	2.95	3.06	3.17	3.28
500	1.13	1.31	1.46	1.60	1.73	1.85	1.96	2.07	2.16	2.27	2.36	2.45	2.55	2.64
525	1.08	1.24	1.39	1.52	1.64	1.76	1.87	1.97	2.06	2.16	2.25	2.33	2.42	2.50
550	1.03	1.19	1.33	1.45	1.57	1.68	1.78	1.88	1.97	2.06	2.15	2.23	2.31	2.39
575	0.983	1.14	1.27	1.39	1.50	1.61	1.70	1.80	1.88	1.97	2.05	2.13	2.21	2.29
600	0.942	1.04	1.22	1.33	1.44	1.54	1.63	1.73	1.80	1.89	1.97	2.04	2.12	2.19
700	0.81	0.932	1.04	1.12	1.24	1.32	1.39	1.48	1.54	1.62	1.69	1.75	1.82	1.88
800	0.707	0.816	0.912	1.00	1.08	1.15	1.22	1.30	1.35	1.41	1.48	1.53	1.59	1.64
825	0.685	0.791	0.885	0.970	1.05	1.12	1.19	1.26	1.31	1.37	1.43	1.48	1.53	1.58
850	0.665	0.769	0.860	0.942	1.02	1.09	1.15	1.22	1.27	1.33	1.39	1.44	1.49	1.54
875	0.646	0.746	0.835	0.915	0.987	1.05	1.12	1.19	1.24	1.29	1.35	1.40	1.45	1.50
900	0.628	0.725	0.811	0.890	0.960	1.03	1.09	1.15	1.20	1.26	1.31	1.36	1.41	1.46
950	0.595	0.687	0.769	0.842	0.910	0.972	1.03	1.09	1.14	1.19	1.24	1.29	1.34	1.39
1000	0.565	0.653	0.730	0.800	0.864	0.924	0.980	1.04	1.08	1.14	1.18	1.23	1.28	1.33
1025	0.551	0.636	0.712	0.781	0.842	0.900	0.955	1.01	1.06	1.10	1.15	1.19	1.24	1.29
1050	0.538	0.621	0.696	0.762	0.823	0.880	0.934	0.985	1.03	1.08	1.12	1.16	1.21	1.26
1075	0.526	0.606	0.679	0.745	0.804	0.859	0.911	0.961	1.00	1.05	1.10	1.14	1.19	1.24
1100	0.514	0.594	0.664	0.727	0.785	0.840	0.891	0.938	0.982	1.03	1.07	1.11	1.16	1.21
1125	0.502	0.580	0.649	0.711	0.767	0.820	0.871	0.920	0.961	1.00	1.05	1.09	1.14	1.19
1150	0.491	0.567	0.635	0.696	0.751	0.802	0.852	0.899	0.940	0.985	1.02	1.06	1.11	1.16
1175	0.481	0.555	0.621	0.681	0.735	0.786	0.834	0.878	0.920	0.965	1.00	1.04	1.09	1.14
1200	0.471	0.544	0.608	0.666	0.720	0.770	0.816	0.860	0.900	0.945	0.985	1.02	1.07	1.12

* Research in Fundamentals of Atmospheric Gas Burner Design, Bulletin No. 10, American Gas Association Testing Laboratories.

this resultant value in the final determination of orifice size.

Another factor worthy of serious consideration in the determination of orifice sizes lies in the fact that a change in gas rate (B.t.u./hr.) takes place as the temperature of that gas changes. The burner, orifice and manifold of an appliance, after continued operation, may be heated, with the result that gas passing through the system also becomes heated. The change in rate produced by this heating effect is dependent upon two characteristics of gases. First, gas expands upon heating with the result that a unit volume at high temperature has a lower total heating value than a unit volume of the same gas at room temperature. Secondly, due to the decrease in density of gas as temperature increases an increase in flow is obtained. As a result of the first effect an appreciable reduction in rate would be obtained, but since an increase in flow occurs at the same time this reduction in rate is partially compensated for. A mathematical analysis of these conditions discloses that gas rates at two different temperatures, assuming that other conditions remain constant and that change in viscosity of the gas is negligible, are inversely proportional to the square root of the absolute temperatures of the gas.

Under conditions of high gas temperature an estimate of the average gas temperature should provide a sufficiently accurate basis from which a determination of a correction factor can be made according to the relationship just outlined. In general, for average temperature changes encountered in most domestic appliances the change in rate as brought about by increased gas temperature will probably be within the required tolerances. Since viscosity of a gas increases as the temperature increases, a further reduction in gas flow can be expected from this cause. However, this effect is probably slight for average temperature changes encountered in domestic gas utilization and may be neglected.

When the actual rate resulting from use of a given orifice is known, the orifice needed to pass a different rate under iden-

TABLE 2—Orifice Capacities in B.t.u. Per Hr. 800 B.t.u., 0.6 Sp. Gr. Gas; (See Table 1 for Corrections To Apply for Other Gases)

Orifice Size D.M.S.	Pressure—In. of Water										
#	3	4	5	6	7	8	9	10	11		
1	78500	96400	111000	124100	136000	147000	157100	167000	176500	185100	
2	73600	90500	104100	116300	127200	139000	147100	156400	165300	173500	
3	68500	84100	97000	108200	118500	129000	137000	145500	153900	161500	
4	66000	81000	93500	104200	114100	124000	132000	140100	148100	155700	
5	63700	78300	90300	100900	110200	120000	127400	135400	143100	150200	
6	62700	77000	88900	99400	108900	117700	125000	132300	139300	146000	
7	60900	75000	86200	96400	105500	114000	122000	129800	137000	144000	
8	59700	73400	84500	94500	103500	112000	119700	127000	134100	141000	
9	58000	71200	82100	91900	100500	109000	116100	123500	130500	137000	
10	56500	69400	80000	89500	98000	106000	113100	120100	127000	133200	
11	55000	67500	77900	87000	95300	104000	110100	117100	124000	130100	
12	53900	66100	76400	85400	93500	101000	108000	114900	121300	127500	
13	51600	63400	73100	81700	89500	97000	103400	110000	116200	122100	
14	50000	61400	70800	79100	86600	94000	100500	106100	112100	118000	
15	48900	60000	68300	76400	83600	92000	96600	102800	108800	114100	
16	47200	58000	66900	74700	81900	89000	94600	100500	106100	111700	
17	45200	55500	64000	71500	78300	85000	90500	96200	101600	106800	
18	43400	53300	61500	68800	75400	82000	87200	92700	98000	103000	
19	41500	51000	58800	65700	72000	78000	83200	88500	93500	98300	
20	39100	48000	55400	62000	68000	73500	78600	83600	88500	93000	
21	38100	46700	53900	60300	66100	72000	76500	81400	86000	90400	
22	37200	45600	52600	58900	64500	70000	74600	79400	84000	88300	
23	35800	44000	50700	56700	62100	68000	71900	76500	81000	85100	
24	34800	42700	49300	55100	60400	66000	69900	74400	78600	82600	
25	33700	41400	48000	53700	59000	64000	68500	73000	77200	81200	
26	32600	40100	46500	52100	57200	62100	66500	70800	74900	78700	
27	31300	38500	44600	50000	54900	59600	63900	68000	72000	75700	
28	29800	36600	42400	47500	52100	56600	60600	64500	68200	71700	
29	27900	34300	39700	44500	48800	53000	56700	60400	63900	67200	
30	25000	30800	35700	40000	43900	47600	51000	54300	57500	60500	
31	21700	26700	30900	34700	38100	41400	44300	47100	49800	52500	
32	20300	24950	28900	32400	35600	38700	41450	44100	46600	49000	
33	19300	23700	27450	30800	33800	36700	39300	41800	44200	46500	
34	18600	22800	26400	29600	32500	35300	37800	40300	42600	44800	
35	18250	22400	26000	29100	31900	34600	37000	39400	41600	43800	
36	17100	21000	24500	27200	29800	32400	34700	37000	39100	41100	
37	16300	20000	23200	25600	28000	30300	32500	34600	36700	39200	
38	15510	19080	22100	24800	27200	29600	31700	33800	35800	37700	
39	14910	18300	21200	23800	26100	28400	30400	32400	34300	36100	
40	14500	17800	20600	23050	25250	27400	29300	31200	33000	34700	
41	13900	17100	19800	22200	24350	26450	28300	30150	31900	33600	
42	13200	16200	18800	21050	23100	25100	26900	28650	30300	31900	
43	11950	14700	17000	19050	20900	22700	24300	25900	27400	28800	
44	11190	13730	15900	17800	19500	21200	22700	24200	25600	27000	
45	10120	12450	14400	16100	17650	19200	20600	21950	23200	24400	
46	9900	12180	14100	15800	17350	18850	20200	21500	22700	23900	
47	9300	11410	13210	14800	16200	17600	18800	20000	21100	22200	
48	8730	10710	12400	13900	15250	16550	17700	18850	19900	20900	
49	8050	9860	11400	12730	13930	15070	16100	17080	18000	18850	
50	7400	9060	10470	11700	12820	13850	14800	15700	16550	17330	
51	6770	8300	9590	10720	11730	12680	13540	14370	15170	15880	
52	6090	7460	8620	9640	10550	11400	12180	12900	13630	14280	
53	5340	6550	7560	8450	9250	10000	10680	11330	11950	12500	
54	4560	5590	6450	7210	7900	8530	9120	9670	10200	10700	
55	4070	4990	5760	6440	7050	7620	8140	8640	9110	9550	
56	3260	3990	4610	5160	5650	6100	6520	6910	7300	7640	
57	2785	3420	3940	4410	4830	5210	5570	5900	6230	6520	
58	2660	3260	3760	4210	4610	4970	5320	5640	5950	6230	
59	2535	3110	3590	4010	4390	4740	5070	5370	5670	5940	
60	2410	2950	3410	3810	4170	4510	4820	5110	5400	5650	
61	2295	2815	3250	3630	3980	4300	4590	4865	5140	5380	
62	2180	2670	3090	3450	3780	4080	4360	4620	4880	5110	
63	2060	2525	2920	3260	3570	3850	4120	4360	4610	4820	
64	1953	2395	2765	3090	3380	3650	3900	4140	4370	4570	
65	1849	2265	2620	2925	3200	3460	3700	3920	4140	4340	
66	1640	2010	2320	2595	2840	3070	3280	3475	3670	3840	
67	1541	1890	2180	2435	2670	2880	3080	3270	3450	3610	
68	1449	1775	2040	2285	2505	2705	2890	3070	3240	3390	
69	1282	1573	1810	2030	2220	2400	2560	2720	2880	3010	
70	1180	1450	1670	1865	2040	2200	2360	2500	2640	2765	

TABLE 3—Rate of Flow of Propane and Butane Through Orifices (19° Angle of Approach and 11 In. of Water Pressure at the Orifice)

Orifice Size D.M.S.	Flow Rate				Orifice Size D.M.S.	Flow Rate				Orifice Size Dia. In.	Flow Rate			
	Propane		Butane			Propane		Butane			Propane		Butane	
	Cu.Ft. per Hr.	B.t.u. per Hr.	Cu.Ft. per Hr.	B.t.u. per Hr.		Cu.Ft. per Hr.	B.t.u. per Hr.	Cu.Ft. per Hr.	B.t.u. per Hr.		Cu.Ft. per Hr.	B.t.u. per Hr.	Cu.Ft. per Hr.	B.t.u. per Hr.
45	19.60	49,000	18.0	57,200	63	3.935	9,850	3.41	10,830	0.004	.0555	138	.0588	187
46	18.46	46,150	17.35	55,100	64	3.72	9,300	3.26	10,350	0.008	.1899	475	.188	598
47	17.60	44,000	16.15	51,300	65	3.52	8,800	3.06	9,725	0.009	.2482	621	.228	724
48	17.1	42,750	15.18	48,200	66	3.135	7,840	2.74	8,700	0.010	.3185	797	.302	926
49	15.29	38,230	13.32	42,300	67	2.965	7,420	2.585	8,215	0.011	.368	930	.326	1036
50	14.12	35,300	12.48	39,650	68	2.79	6,980	2.39	7,590	0.012	.410	1025	.370	1175
51	12.89	32,220	11.43	36,300	69	2.435	6,090	2.125	6,750					
52	11.93	29,820	10.01	31,800	70	2.245	5,615	1.968	6,250					
53	10.00	25,000	8.87	28,150	71	1.938	4,845	1.685	5,350					
54	8.85	22,130	7.61	24,170	72	1.797	4,490	1.559	4,950					
55	7.78	19,450	6.76	21,470	73	1.635	4,090	1.422	4,520					
56	6.27	15,680	5.43	17,240	74	1.422	3,555	1.23	3,910					
57	5.295	13,240	4.635	14,710	75	1.255	3,140	1.09	3,460					
58	5.08	12,700	4.45	14,110	76	1.113	2,825	0.986	3,130					
59	4.845	12,120	4.19	13,310	77	0.891	2,230	0.782	2,485					
60	4.57	11,420	4.02	12,760	78	0.708	1,770	0.622	1,975					
61	4.37	10,920	3.83	12,160	79	0.570	1,425	0.5045	1,600					
62	4.085	10,210	3.59	11,400	80	0.495	1,240	0.412	1,315					

Notes: 1. B.t.u. rates based on heating values of 2500 and 3175 B.t.u. per cu.ft. for propane and butane respectively. For other heating values multiply cubic foot rate by heating value.
2. Specific gravities of test gases were 1.53 and 2.0 for propane and butane respectively. For other specific gravities such as for propane-butane mixtures find cubic foot rate by interpolation or use equation.

tical conditions can readily be computed by application of the following formula:

$$\frac{A_x}{A_1} = \frac{Q}{Q_1} \text{ or } A_x = A_1 \frac{Q}{Q_1}$$

Where:

- A_1 = area of known orifice,
- A_x = area of required orifice,
- Q_1 = rate of flow through A_1 , and
- Q = required rate of flow through A_x .

It is equally important that orifices be accurately drilled and mounted to insure obtaining the desired capacity as well as optimum primary air injection. If the machine used for drilling orifices has a loose spindle, or if twist drills having incorrectly ground lips are employed, oversized orifices will be produced with the result that gas rates may be higher than expected. This is a particularly important consideration when dealing with high heating value gases such as propane or butane, since a slight increase in orifice area may produce a very large increase in gas input. Improper drilling can also result in burrs or some similar defects which will have the added disadvantage of tending towards noisy operation.

Table 3 is presented to serve as an aid in determining the proper orifice size in those cases where propane or butane gas is utilized. The table, which is complete and self-explanatory, was taken from a paper previously published by the Laboratories.

† Technical Phases of Propane-Butane Utilization, W. R. Teller, American Gas Association Testing Laboratories.

New Laboratories' Fees Announced

A STUDY of the cost of handling appliances submitted to the Laboratories for certification has indicated that certain of the A. G. A. Testing Laboratories' operations have been conducted at a loss. This is particularly true where it was necessary to conduct only one test under fees previously established for partial examinations. It is necessary, for example, to uncrate, erect, and adjust each piece of equipment regardless of the number of tests conducted. Furthermore, study of records to determine tests required, preparation of descriptions, certificates, and test reports, as well as recrating and shipping, all represent time-consuming operations that are not fully met by the fees formerly charged for partial tests.

In view of the increasing number of appliances submitted for partial tests during the past few years, the Laboratories Managing Committee, at its meeting held October 9, at Atlantic City, established a minimum test fee for all appliances submitted for partial test. It was ruled that, effective October 15, where minor tests are conducted on a complete appliance, a basic charge of \$15 shall be added to all

partial test fees of \$15 or less. In cases where the partial test fee is more than \$15 and less than \$30, a sufficient basic charge shall be added to bring the total fee to \$30. This minimum charge will apply to complete appliances only, and not to accessories.

At the same time, the fee for conducting a pressure drop capacity test on central heating gas equipment was increased by the Laboratories Managing Committee. Since this test is comparable to capacity tests required for all accessories for which a charge of \$10, and \$13.50 had been established for member and non-member manufacturers, respectively, and an equiv-

alent amount of work is required in each instance, it was believed that the charges should be equal. Consequently, the fee for pressure drop capacity tests on central heating gas appliances was raised from \$5 to \$10 for members, and from \$7.50 to \$13.50 for non-member manufacturers, effective October 15.

In addition, consideration was given to a new and equitable schedule of fees for such accessories. In these new rates, pilots which remain open in service, in contrast to those which operate each and every time the main gas burner is turned on, were given full consideration. The following fees were adopted, effective October 15:

TESTS FEES FOR AUTOMATIC PILOTS

	Members	Non-Members
Complete Test—Pilot remains open in service	\$ 90.00	\$120.00
Complete Test—Pilot operates each and every time main gas burner is turned on	175.00	233.50
Partial Tests		
Construction	10.00	13.50
Pilot Operation	10.00	13.50
Leakage	5.00	7.50
Capacity	10.00	13.50
Time of Operation	22.50	30.00
Continuance in Open Position	25.00	33.50
Continued Operation (100 cycles)	30.00	40.00
Continued Operation (20,000 cycles)	100.00	133.50

Statement of the Ownership, Management, Circulation, Etc., Required By the Acts of Congress of August 24, 1912, and March 3, 1933

Of American Gas Association Monthly published monthly except July-Aug. which is combined at Brattleboro, Vt., for October 1, 1940.

State of New York, County of New York, ss.
Before me, a Notary Public in and for the State, and county aforesaid, personally appeared James M. Beall, who, having been duly sworn according to law, deposes and says that he is the Editor of the American Gas Association Monthly and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Association, Inc., 420 Lexington Ave., New York, N. Y.; Editor, James M. Beall, 420 Lexington Ave., New York, N. Y.; Managing Editor, None; Business Managers, None.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

American Gas Association, Inc., 420 Lexington Ave., New York, N. Y.; President, Walter C. Beckjord; Vice-Presidents, T. J. Strickler, Geo. F. Mitchell; Treasurer, E. R. Acker; Managing Director, Alexander Forward (all of 420 Lexington Ave., New York, N. Y.)

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5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is . (This information is required from daily publications only.)

JAMES M. BEALL, Editor.

Sworn to and subscribed before me this 19th day of September, 1940.
(Seal)

LAWRENCE P. BROWN,

Notary Public, Queens Co. No. 196, Reg. No. 4628
Cert. filed in N. Y. Co. No. 243, Reg. No. 1-B-162
Commission expires March 30, 1941

Wear Your A. G. A. Membership Pin

Members of the American Gas Association are urged to wear their membership pins at all times to show their affiliation with their national organization and their wholehearted support of its ideals and activities. Those who have not already secured pins may get them from the Association at a cost of \$1.00 each. Presenting a neat and attractive appearance, these pins are a reproduction of the A. G. A. seal in solid gold, approximately one-half inch in diameter.

Gas Use Increases for Motor Transport

AN interesting sidelight of the war has been the conversion of many gasoline-operated vehicles to town gas. The extent of this development is brought out in current English trade journals in comment upon a paper by E. A. C. Chamberlain of the Gas Light and Coke Company, London. According to this account, by last July over 80 gas filling stations had been installed in London and this type of fuel is being used extensively for delivery work in that city.

Dr. Chamberlain reports that, provided a vehicle is in a reasonably good mechanical condition, satisfactory results can be achieved after conversion from gasoline to gas. He describes the results of converting a fleet of 70 light delivery trucks of various sizes to town gas. Assuming 300 cubic feet of gas is equivalent to one gallon of gasoline, the saving in gasoline in six months has amounted to 7,000 gallons. Over a year, these vehicles will account for a gas consumption of about 8,500,000 cubic feet.

Today's HOME Adopts New Policy

A CHANGE in publication policy has been announced by Today's Home, the popular customer-contact magazine used by a large number of gas utilities. Starting the third year with a substantially increased circulation, the new policy calls for six issues per year instead of the previous eight, thus reducing the cost to subscribers by 25 per cent.

Under the new schedule, issues will be designated as Winter, Spring, Summer, Mid-year, Autumn, and Holiday, instead of the previous monthly designations. This change was made to permit better timing of local distribution with seasonal sales activities and also to concentrate the influence of the publication evenly in the Spring and Fall selling seasons.

Gas at the Metal Show

(Continued from page 447)

The Surface Combustion Corp.,
Toledo, Ohio

The new Syncro Machine development for continuously bright annealing wire at lightning speeds in open gas flames was displayed for the first time by The Surface Combustion Corporation at the A. G. A. Combined Industrial Gas Exhibit. Unannealed wire was passed through wire brush cleaners and feeding rolls into the open flame zone, where it pierced a 9' line of precisely controlled gas flames in such a manner that, throughout its entire travel, it was in the flame at just that point where the burning gas compositions and temperatures were just right for the anneal required. From this zone, it immediately passed into a tube supplied with inert DX gas, so that there was no open air gap to tarnish the bright anneal between the flame zone and the water quench and cooling period. A continuously indicating "anneal meter" showed the constancy of the bright anneal achieved.

Most significant virtues of the unit are the facts that it eliminates costly furnace constructions and reduces gas consumptions to an absolute minimum—for there is no brickwork or atmosphere tube to heat. The flue on this large-production unit was scarcely larger than that required for a domestic gas range. Space conservation, adaptability to high-speed wire production lines, and simplicity of operation are also important factors, of course.

Featured accessories were: (1) the SC luminous variable flame burner with an automatically proportioning air valve (of fixed total orifice) for primary and secondary air, so that the total air input to the burner is not varied as its adjustment from no-secondary-air to all-secondary-air is made, and (2) the new venturi mixer for atmospheric inspirators with an elongated shutter casting to permit the easy removal of fixed orifice spuds, and skirt the necessity for tamper-tempting adjustable spuds. This new latter fitment is available in all pipe sizes from 3/4" to 2 1/2".

Personnel Service

SERVICES OFFERED

Industrial Gas Engineer, 10 years industrial and house heating experience with manufactured and natural gas. Surveys, preparation of rates, sales manager of small plant. Also 10 years construction experience. Graduate C. E. Desires position in industrial or house heating. (51.) 1391.

Engineer with exceptionally well rounded operating experience in operation of water gas, retort and coke oven plants; construction and operation of distribution systems; design and manufacture of gas plant equipment and in rate, valuation and plant record work. Employed but desire position with greater possibilities. (45.) Technical graduate. 1392.

Advertising Service Man, experienced since 1920 in gas and electric promotions east and middle west on customer and employee relations, utility and appliance sales as advertising manager, writer, house organ editor. No miracles, but complete, practical detailed productions. Fee basis or moderate salary. Invites correspondence or interview. 1393.

Patent agent and Research Engineer, 12 years domestic and foreign patent experience, languages; specialize gas, coke ovens, industrial furnaces, burners, gas production, distillation, carbonization, cracking, refractories. Desires responsible position in corporation, or to organize corporation patent department, or manage all patent work. 1395.

May I help you? Have exceptional record as new business head, writing good will and merchandising copy. Excellent results from public and employee relation work. Specialized in water heating, obtaining very high saturation with sound and unique plans. Have spent the last seven months researching water heating by other fuels. 1396.

Executive Engineer—Graduate Mechanical Engineer—Experienced construction and operation of manufactured coal, water gas, and water properties, both production and distribution; soft coal and heavy oil operation in smaller plants, natural gas and reformed butane gas for natural gas peak shaving. Familiar with construction and operation of budgets and estimates. 1397.

Advertising and sales promotion man. Successful record as publication editor and copywriter for gas utility operating in three states. Four years out of college. Advertising experience covers manufacturing, retail, and agency fields. Adept at producing booklets, advertisements, direct mail pieces, displays. Interested in connection with utility or manufacturer. Married. (27.) 1398.

SERVICES OFFERED

Chemist (41) with twenty years' gas company experience including some plant operating training and engineering assistant duties is available on reasonable notice. Excellent educational background. U. S. Army training. 1399.

Mechanical engineer, 28, married, graduate of leading technology university, 1934. Excellent background of sales and application engineering in heating, ventilating and air conditioning, (gas and electric). At present employed as sales and service engineer by gas and air valve manufacturer. Experienced in combustion, space heating and gas appliances. 1400.

Man exceptionally qualified to head **Industrial Department** of large utility, to serve a **combustion engineering** concern, or large consumer. Experienced in market surveys. Sales promotion, consulting with consumers on utilization. Authority on relative merits of fuels. Writes clearly, in non-technical style. Resourceful—friendly. Registered professional engineer, New York and Pennsylvania. 1401.

POSITIONS OPEN

Salesman to represent manufacturer of well accepted gas fired bake ovens in greater New York and surrounding area establishing dealer outlets through supply houses and gas utilities, and selling direct to bakers, hotels, etc. Man with experience in selling bakery equipment preferred. Remuneration on straight commission basis. Exclusive territory protection. State detailed qualifications in application. 0351.

Industrial gas sales engineer with technical training and selling experience who can produce results in the sale of manufactured gas to a wide variety of industrial plants. Must be capable of eventually taking charge of industrial sales and service under contemplated expansion with the advent of natural gas in the spring. 0353.

Operating Foreman. Young practical gas maker with executive ability who can take charge in foreman's absence. Must have had all 'round practical experience. To grow up with medium size Eastern company; \$40.00 to start. 0354.

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